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Deal Maker, Deal Breaker

A merger can float or flounder depending on how well IT fits in the mix Page 32

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Deal Maker, Deal Breaker

A merger can float or flounder depending on how well IT fits in the mix Page 32

Stratos CEO Derrick Rowe (left) and Technology VP John Mackey are joined at the hip in all merger talks

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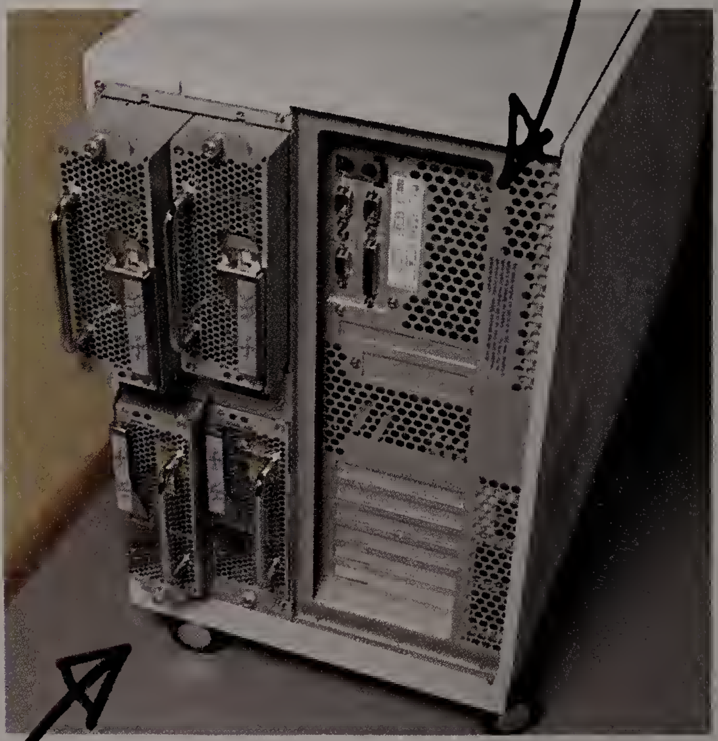

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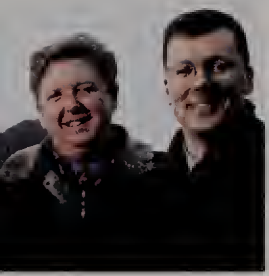

ON THE COVER Stratos CEO Derrick Rowe and VP of Technology John Mackey keep the channels of communication open when it comes to merging IT operations.
Cover photo by Dan Callis

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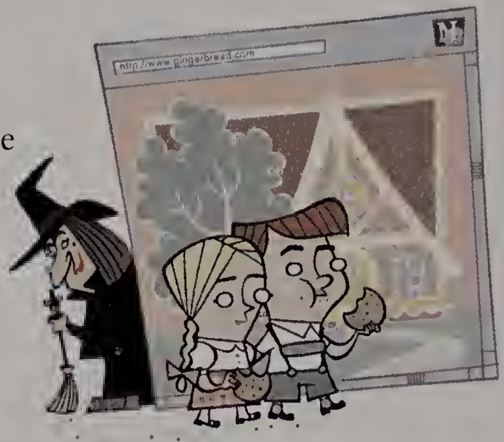

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I.T./BUSINESS ALIGNMENT By rescuing the procedures that govern your business from the dark recesses of code, the disconnect between IT and business could finally be healed.

ENTERPRISE RESOURCE PLANNING
Four strategies for making bolt-on integration work.

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Re: Caution—Merge Ahead

Today's business environment has all the ambiance of a shark tank at feeding time.

DEPENDING ON THE SOURCE you consult, the total merger and acquisition price tag for the United States in 1998 was somewhere between $1.7 trillion and $2.4 trillion. That's a 30-fold increase over the total M&A activity in 1968. It's roughly five times greater than the entire economy of Turkey and 50 percent more than the gross national product of France. Remember, M&A dollar figures represent no new products, no breakthrough processes, no economic expansion and no growth; the figures indicate change only in management and ownership. So when the financial pages toss off numbers that would've impressed Carl Sagan, you want to ask, What the heck is going on?

In the late 1960s, mergers were about diversification. In theory, if one line of business experienced hard times, the others under the same corporate tent might be doing well enough to guarantee a constant revenue stream to shareholders. Conglomerates combined manufacturing housewares with luggage and cattle and perfume and containerized shipping and finance. If you asked an exec what the core competency of an organization was, you'd get a puzzled look and an answer that roughly meant, "We make money, bozo."

PHOTO BY WEBB CHAPPELL

But we live in a changed world. A generation later, the three leading drivers for mergers are the globalization of business, the greater efficiencies made possible by information technology and the emerging markets.

The highest-stakes game in town draws executives with nerves as steady as a riverboat gambler's. But despite the surge in M&A activity, the fact remains that 80 percent of all acquisitions fail to recapture the projected costs of merging in fewer than five to seven years, if ever. And losses can be catastrophic. For example, in 1994 Novell Inc. bought WordPerfect for approximately $1.4 billion in cash and stocks and 18 months later sold the business to Corel Corp. for $158 million. That's a loss of almost 90 cents on every dollar. Ouch.

Whether you call it consolidation or shakeout, the contemporary business environment has all the ambiance of a shark tank at feeding time. This is no place to be treading water. Our cover story, "Secrets of the Merger Monsters" (Page 32), will give you the buoyancy and power you need to swim ahead of the pack.

Perry Glasser, Senior Writer
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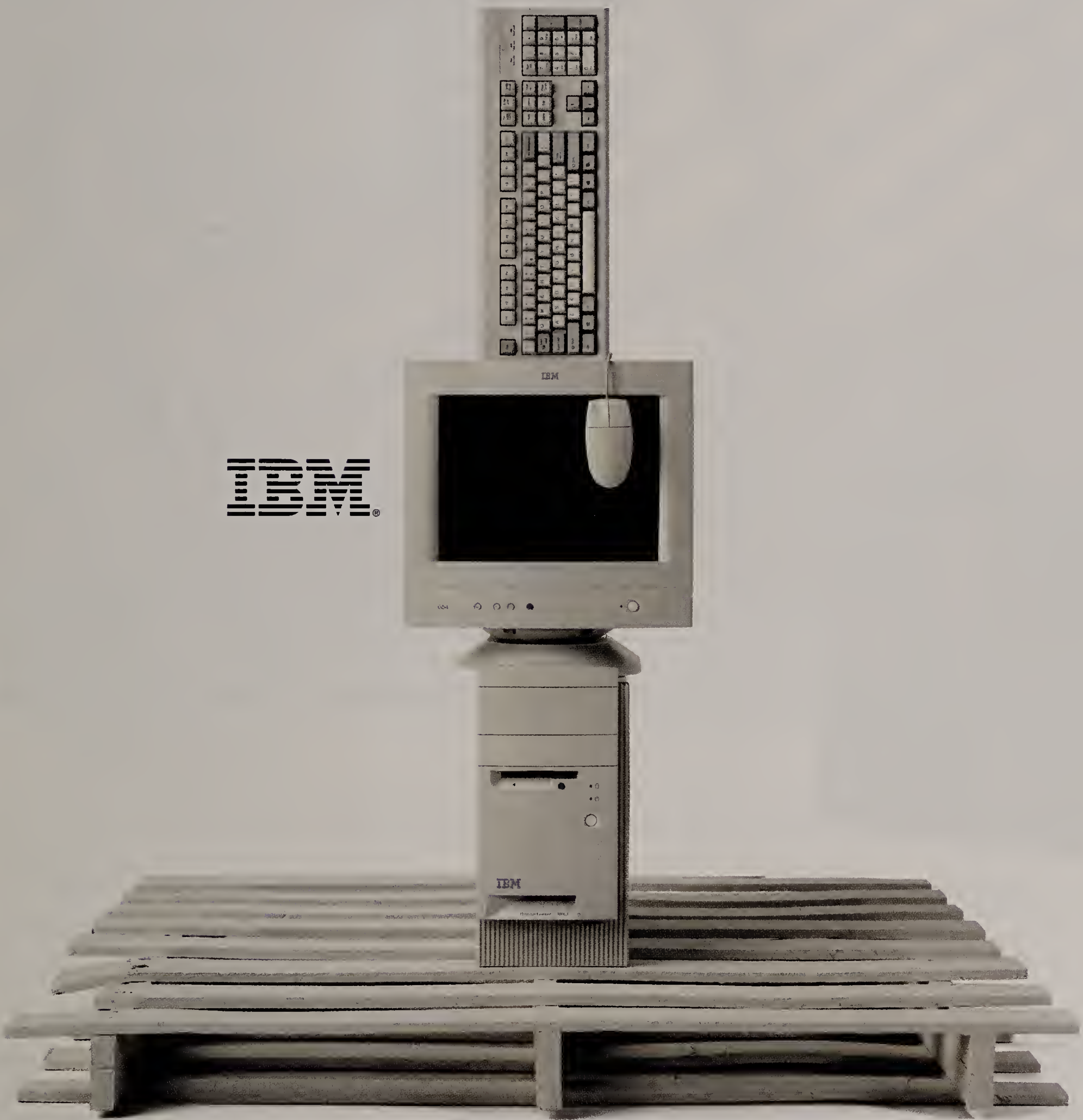

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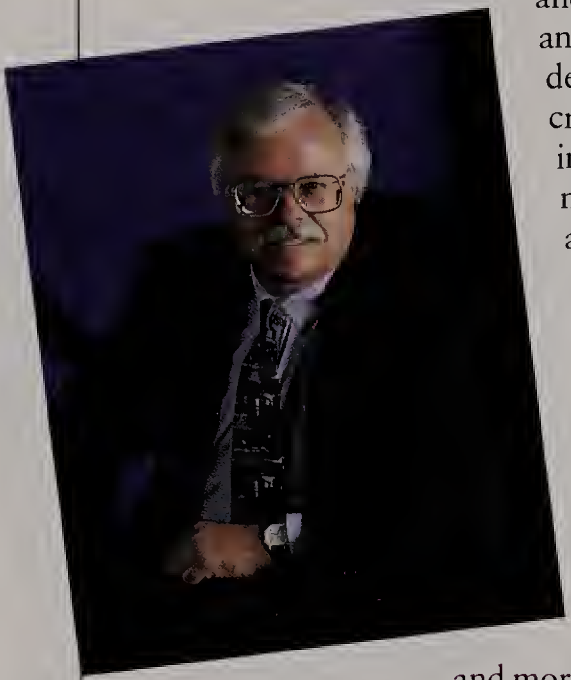
In My Opinion

The goal of enterprise computing in 2000 and beyond is to safely enable worldwide access to corporate data.

I RECENTLY SPOKE WITH SCOTT McNealy, chairman, president and CEO of Sun Microsystems Inc., about the future of computing. We agree that today we are dealing with an outmoded computing model designed over 30 years ago, well before the age of the Internet.

Upon examination, the stated goals for Windows 2000 are similar to those for OS/390. It is not surprising that OS/390 is alive and well today. Naturally there have been many changes and enhancements over the years, but OS/390 still has the basic MVS architecture. The fact that MVS is still so pervasive is testimony to how little things have changed.

The exception has been the advent of the personal computer. In the beginning, when PCs were personal, CIOs expressed annoyance over their existence more than anything. But as PCs became corporate desktops and integral parts of mission-critical systems, the challenge of developing and managing applications across the network came to dominate the budgets and attention of all CIOs. The challenge of personal computers as corporate desktops is not practical in the current architecture.



The goal of enterprise computing in 2000 and beyond is to safely enable worldwide access to corporate data and applications by any authorized user, regardless of the access device. This vision is an enterprise computing environment that is more powerful and more efficient than the model in use today.

In future enterprises, customers, suppliers, partners, employees and other stakeholders visualize one seamless electronic environment, differentiated only by access rights. All applications would operate safely within and across firewalls, including those accessed from the Internet.

CIOs must focus on developing an integrated set of technologies that provide the business flexibility to react quickly to market conditions and end-user needs. The technologies must also maximize group empowerment, accelerating decision making and optimizing collaboration with universal information exchange.

Joseph L. Levy
President, CEO and Group Publisher
jlevy@cio.com

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Merger Advice
Have a question about managing IT during a merger or acquisition? You can pose it to Virginia Reck, senior partner of Kendall Consulting Group. From now until April 30, Reck will be available at *asktheexpert@cio.com* to offer advice on surviving a merger or acquisition. For in-depth coverage of the topic, turn to Page 32 of this section.

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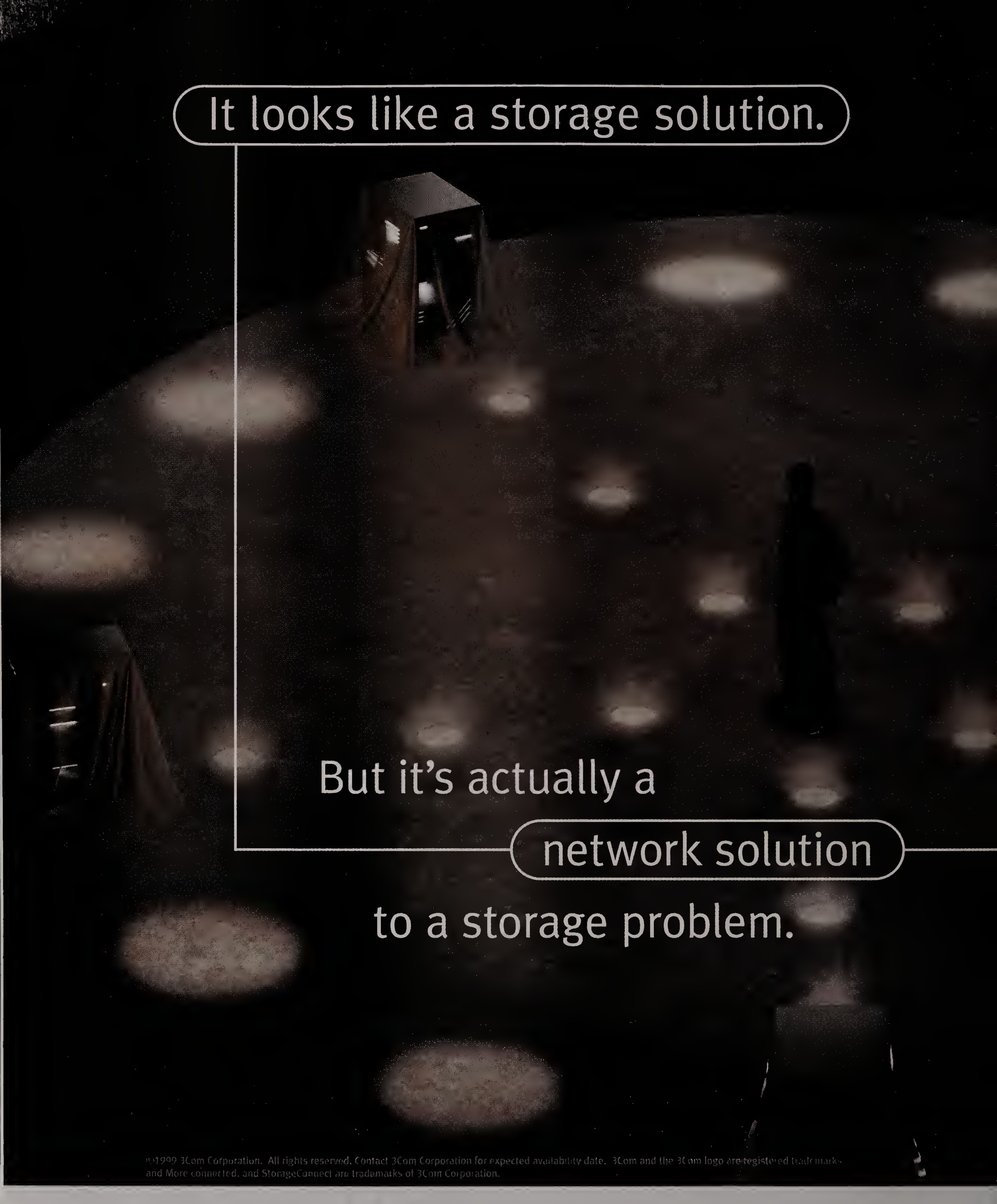

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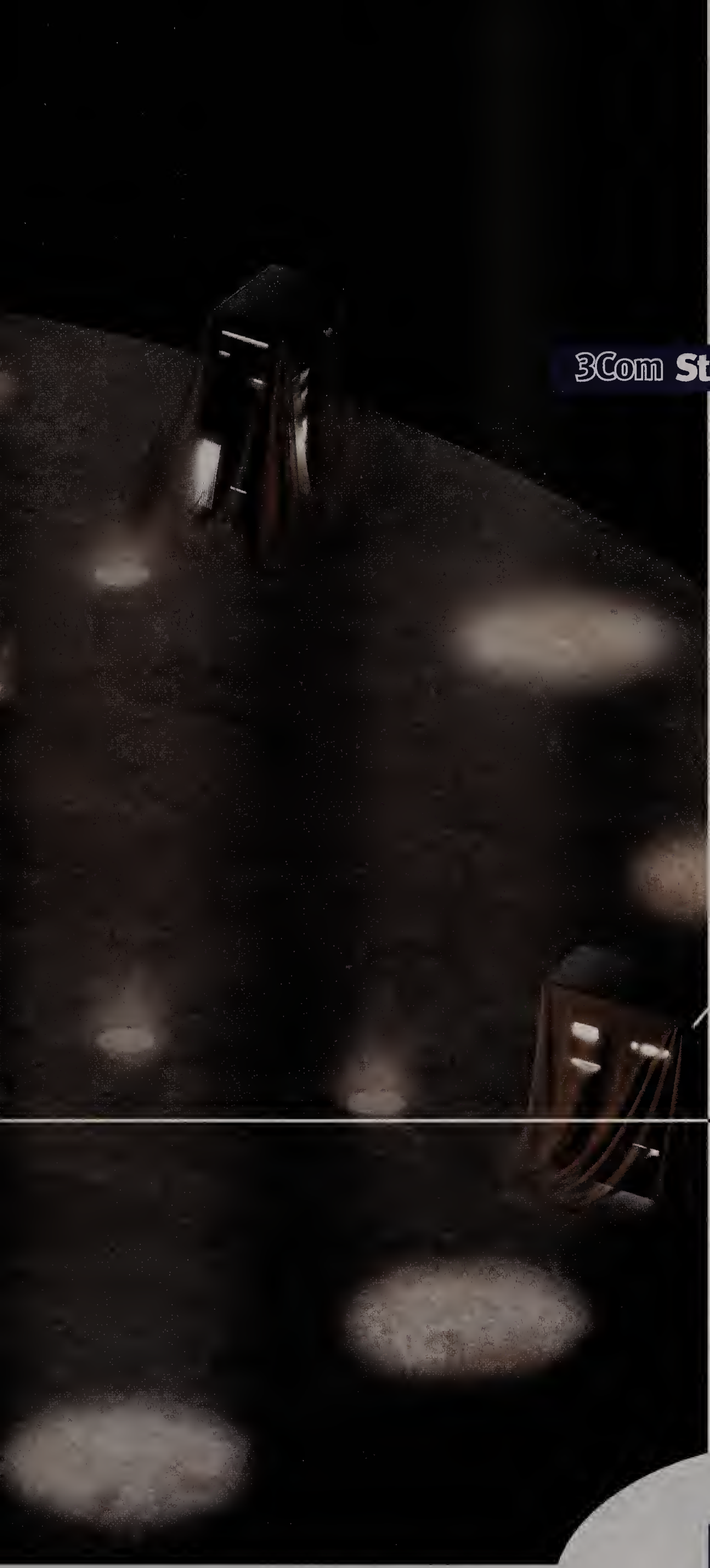

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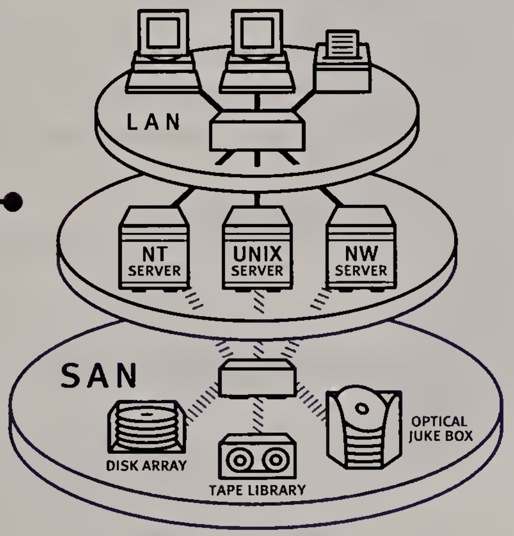

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In Their Own Words 24

O-Pairs

Two for the Road

Schneider National President Donald Schneider and CIO Christopher Lofgren credit their IT steering committee with smoothing IS-business relations.

PHOTO BY JEFF LENDRUM

LIKE A TIGHTFISTED FATHER with a spendthrift child, business executives frequently have an uneasy relationship with IS departments. At best, the flaws in this often-tenuous partnership produce occasional sparks at budget time. At worst, a poor working relationship can lead to expensive project failures and acrimony.

At Schneider National Inc. (SNI), the nation's largest truckload carrier, executives had an appreciation for technology, but they didn't always understand the purpose and the cost behind it, which led to some frustration over IT expenditures. In January 1997 President **Donald Schneider** and Chief Technology Officer **Christopher Lofgren** formed an IT steering committee with the hope that it would more closely knit the interests of the business and IS groups.

The team is composed of four business unit vice presidents, two IS vice presidents, the corporate treasurer and the transportation controller. They meet weekly to update one another on current undertakings and to discuss the business value of new IT projects and what IT investments might be needed in the future.

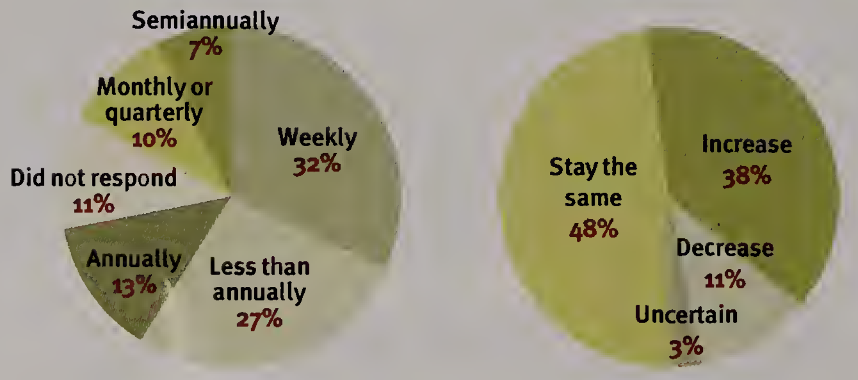
One successful project that had its origins in the committee was the company's Internet track and trace system, which allows customers to go online and check the location and status of their freight. From the outset, the committee helped SNI understand what the tension points would be during the implementation process, and the project ran more smoothly as a result.

Schneider says there's a two-way education process that takes place in the committee. Business people learn what technology can do for the enterprise, and the "technical people are educated on what pays off and what doesn't.... There's nothing more frustrating than working hours and

Survey Says

IT Prognostications

A survey of high-tech executives



How frequently must you update your technology to retain your competitive edge?

Looking ahead over the next year, do you expect IS's share of the operating budget to increase, decrease or stay the same?

SOURCE: PRICEWATERHOUSECOOPER'S TECHNOLOGY BAROMETER REPORT, FEBRUARY 1999

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Business Services & Outsourcing	N/A	N/A	N/A
Computers	90.41%	35.63%	28.13%
Developing Communications	62.57%	21.69%	23.49%[2]
Electronics	46.51%	36.14%	29.27%
Software & Computer Services	41.32%	23.79%	24.04%
Technology	68.86%	28.10%	25.79%

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[1] U.S. Dept. of Commerce "The Emerging Digital Economy," 1998 [2] Life of fund is as of inception date: 6/29/90. [3] Average annual total returns include changes in share price, reinvestment of dividends and capital gains, and each fund's 3.00% sales charge and trading fee. Share price and return will vary and you may have a gain or loss when you sell your shares. All Select equity portfolios have a $7.50 exchange fee and a 0.75% short-term trading fee on shares held 29 days or less. On shares held 30 days or more, the trading fee is the lesser of $7.50 or 0.75%. Fidelity Distributors Corporation. 71919

hours and then finding out that [the technology] is not all that useful."

This new business and IS alignment has paid off for SNI. In fact, the Green Bay, Wis.-based company won't commit money to an IT project unless there is a sponsor from the business side to ensure that business process changes are made to support that project.

Perhaps the most important benefit of the close relationship between SNI's business and IS groups is that good technology decisions translate into good customer relations. Schneider recounts a story in which he was enthusiastically describing to a client the company's new global satellite positioning system and how much shipping time it would save the client. Schneider says, "His comment was, 'Don, let me tell you this, if it improves our on-time results, I don't care if you use carrier pigeons.'"

–Daintry Duffy

Executive Recruiting

(Your Boss) Heard It Through the Grapevine

AH, THE WONDERS OF THE WEB. The once opaque market in high-paying executive positions has turned nearly as clear as a crystal lake, now that both recruiters and employers are flocking online. Without a great deal of effort or much Net know-how, an executive can find job postings offering six-figure salaries for middle and senior positions at major U.S. companies. But is it safe to reply?

Privacy is the big question for job searchers. Going to an online headhunter might mean tipping off your employer, if your employer happens to come across your electronic résumé. Similarly, privacy is an issue for the companies that recruit online. Advertising job openings could mean alerting your competitors to your business plans.

"In the infancy of the Internet, there are a lot of things that people in their naiveté aren't aware of. Companies are racing to put out information [about their job needs]," says **Richard Johnson,** an executive recruiter for 15 years before founding HotJobs.com Ltd. in New York City, a company that offers an online employment site. When a company posts a job calling for specific technology skills, it can be a giveaway for anyone trying to find out what the company's latest project is, he explains. "You should be careful what HR departments are writing [in job descriptions]," he adds.

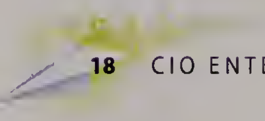
To avoid privacy problems, Johnson says that some company recruiters and job-hunting executives are staying offline. Johnson's company, whose business is based on controlled access to postings for both the employers and job seekers, offers another solution. Executives who go to HotJobs.com post their résumés on their own individual home pages, which they can designate as open access or restricted to companies that have signed up to recruit via the HotJobs site. Job hunters can also choose to block up to 20 companies from seeing their home pages, and they can get a heads-up e-mail if their own employer signs up with HotJobs.

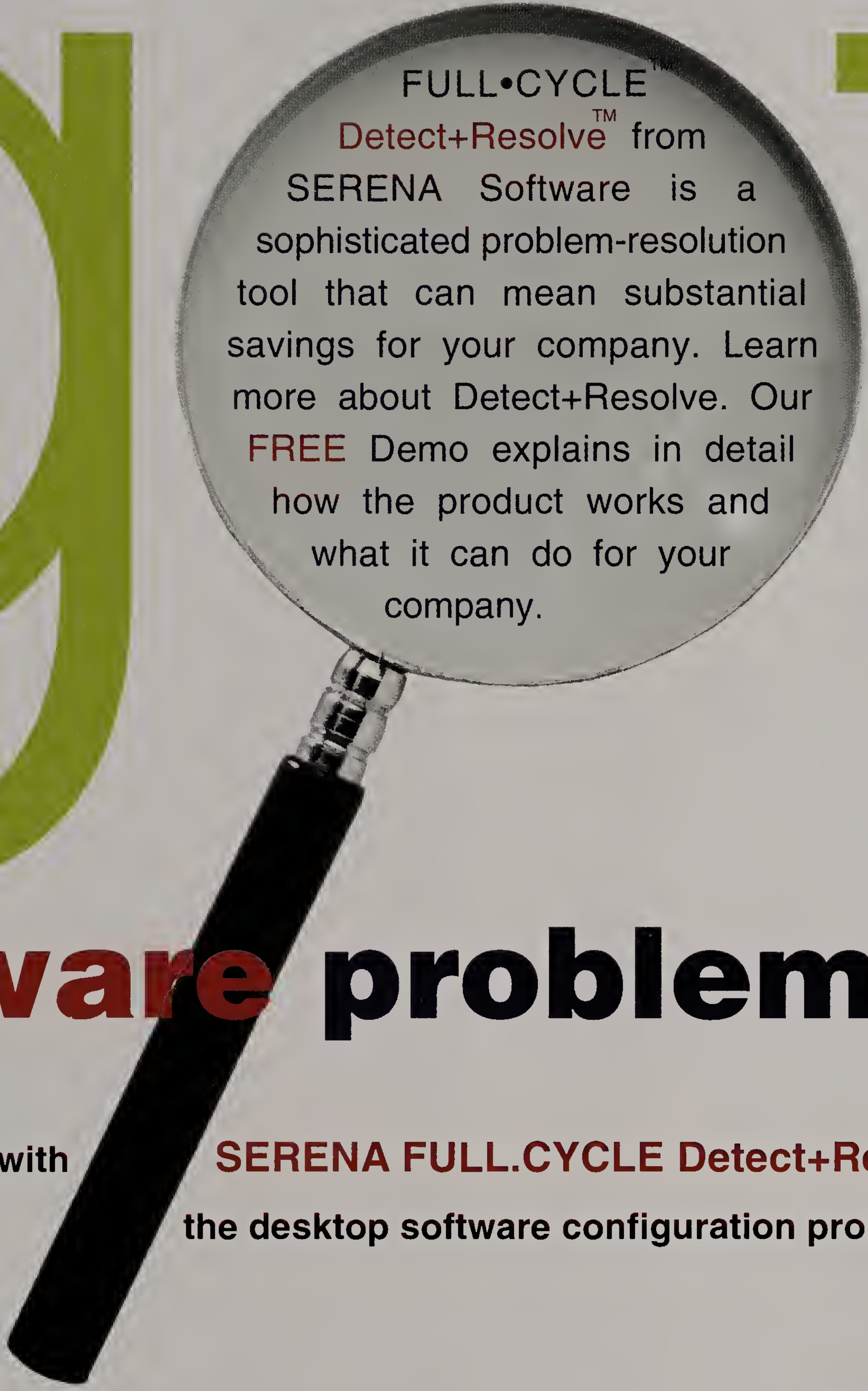
Since most young college grads are willing to tell the world about their job search, the challenge in the online recruiting market is to lure senior job hunters. The protected résumé feature helps. About 20 percent of HotJobs' 226,500 job seekers earn more than $100,000 at their current jobs (as of January 1999). **Chad Theule,** manager of recruitment technology for Lucent Technologies Inc. in Murray Hill, N.J., says, "We're finding the Web to be a source for jobs that six months ago we thought had no business being on the Web—director- and vice president-level jobs with salaries of $150,000 and up."

So go ahead, tell human resources about this new recruiting opportunity. Just tell them how happy you are at your current job too.

–Gary Abramson

ILLUSTRATIONS BY CHRIS LENSCH





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Multimedia Messaging

"Here's Me Playing Air Guitar"

IN 1998, 500 MILLION TEXT-BASED PERSONAL E-MAIL MESSAGES were sent each day, five times the daily average of 100 million messages in 1996, according to Forrester Research Inc. The Cambridge, Mass.-based research firm predicts that by 2002, 1.5 billion personal e-mail messages will flood the Internet every day. And of these 1.5 billion e-mails, at least 25 percent will contain some form of multimedia enhancement, such as graphics, audio or video.

Tony Levitan, co-founder and president of E-greetings Network (*www.egreetings.com*), believes that the evolution of e-mail from a unidimensional to a multidimensional messaging medium is inevitable, as users seek ways to personalize their correspondence and communicate their feelings more clearly. His company sends electronic greeting cards (more than 8 million last year), many of them multimedia-enhanced. According to Levitan, text-based e-mails are emotionally inadequate. As evidence, he points to the ubiquitous use of silly emoticons, such as the sideways smiley face— :) —to convey the tone of messages.

Microsoft Corp.'s Outlook Express and Banyan Systems Inc.'s BeyondMail are two messaging software packages that convert text to voice and allow users to view images without opening other applications—great news for you highly expressive types out there and for those sick— :(—of emoticons dotting your e-mails. ■

Job Outlook

Farewell Spring Break, Hello Coffee Break

COLLEGE SENIORS DEBATING whether to look for a job or take a postgraduation hiatus might want to consider the following: Employers are forecasting a 10 percent increase in the number of job opportunities for the class of '99.

The National Association of Colleges and Employers (NACE) released findings from its annual Job Outlook survey, which was sent to hundreds of its employer members' human resources departments. And respondents were bullish about this year's job market. According to the results, 55 percent of employers surveyed plan to hire more new graduates this year than they did last year. Only 8 percent said they are cutting back hiring this year. Service-sector employers, such as financial service companies and computer software and consulting firms, projected a 21 percent increase in their new college hires, the highest of the industry groups surveyed. (See chart above.)

Projected number of hires by industry group

	NUMBER OF HIRES		
INDUSTRY	**97-98***	**98-99****	**% CHANGE**
Service	27,535	33,218	20.6
Manufacturing	17,777	16,715	-6.0
Government/Nonprofit	4,628	5,186	12.1
Total	**49,940**	**55,119**	10.4

*ACTUAL **PROJECTED

NOTE: NACE CLASSIFIES ALL ITS MEMBER EMPLOYERS IN THESE THREE INDUSTRIES.
SOURCE: JOB OUTLOOK '99, NATIONAL ASSOCIATION OF COLLEGES AND EMPLOYERS

As one might expect, the employers surveyed are most interested in graduates with computer science, information science and management information systems degrees. And salaries for graduates in those fields are projected to start at over $40,000 a year—which should help cushion their transition into the real world. ■

CARTOON BY DONNA BARSTOW

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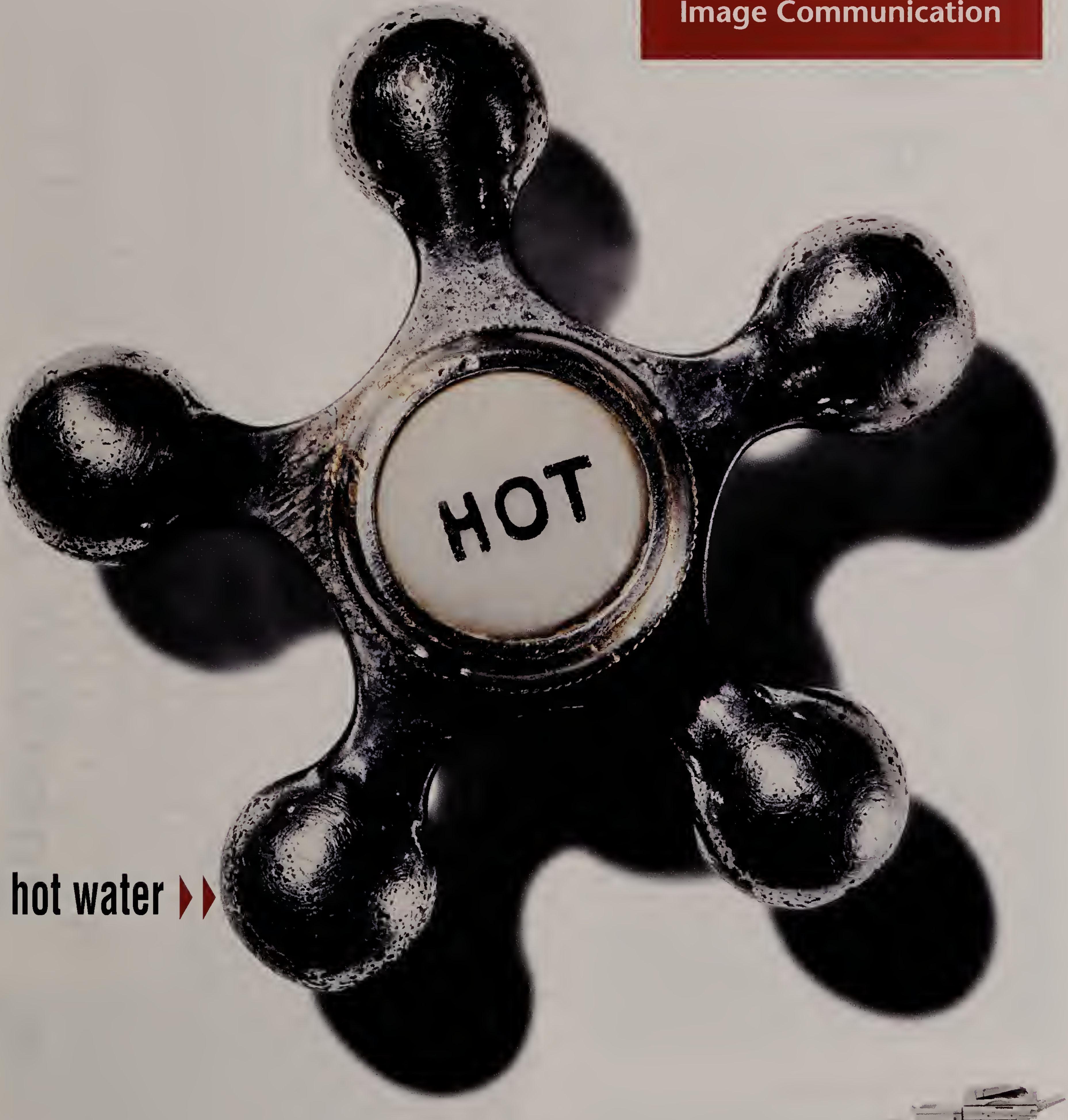

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Political Scene

Bad Software Code?

WITH JUICY STORIES ABOUT public trust and antitrust dominating the news recently, it's been easy to overlook the decidedly unsexy but extremely important revisions to the Uniform Commercial Code (UCC) Article 2B currently being contemplated. The UCC is a set of guidelines used by states to draft laws governing product manufacturers' liability and responsibility for goods like toasters and washing machines. Since 1993 a group of lawyers has been trying to revise the UCC to extend coverage to such information-based products as software, databases and computer-based services like airline ticketing—that is, intangible goods. The group's goal is to improve the existing guidelines to better reflect the realities of the electronic age. But, according to critics, if the 2B revisions are passed as they stand today, vendors that sell information-based products would gain an unfair advantage.

Perhaps the most troubling element in the draft is the self-help right of vendors. If a software vendor decides that a customer breached its contract, the vendor could unilaterally decide to "help itself" by electronically disabling the customer's offending—and potentially mission-critical—software application.

Though it's unlikely many vendors would ever take such a drastic measure (can you see a vendor PR department spinning that one?), it may still raise some companies' eyebrows. Another problem with the draft is the perfect tender law, which frees vendors from responsibility for snafus in their products as long as the product is mostly right, says **Susan Nycum,** an international partner in the law office of Baker & McKenzie in Palo Alto, Calif., which represents the Society for Information Management International (SIM) in Chicago. Finally, under the proposed revision, companies will be seriously hindered in their ability to conveniently sue vendors because they will have to do so in the state the vendor chooses.

Since *CIO* last wrote about this issue (see "Rewriting the Code," *CIO* Section 2, Oct. 15, 1997), it remains unclear whether the drafting committee will pay heed to critics' concerns. With the exception of a provision that released software vendors from liability for computer viruses infecting their products, all the provisions that worry people like Nycum are still present in the proposed revision. "The problem is that the business buyers have very limited desire or opportunity to come together and join arms in a counterpunch," says **John Stevenson,** immediate past president of SIM and vice president of information management in Bristol-Meyers Squibb Co.'s Worldwide Medicines Group in Princeton, N.J.

What will happen now is anybody's guess. The draft will either be fixed, abandoned or "they'll try to bull it through," says Nycum. "What we have to do is take the worst-case position and start mobilizing our companies to educate their legislators in case this does get passed by [the drafting committee] and then the states," she adds. But it behooves companies to do so quickly, says Stevenson. "My biggest concern now," he says, "is that they're almost done drafting, so we may or may not be able to get a fairer document."

For more information on Article 2B, check out *www.2bguide.com.*

–Jennifer Bresnahan

ILLUSTRATION BY CHRIS LENSCH

In Their Own Words

"You all aren't as lucky as me. I'm a tenured professor."

–F. WARREN MCFARLAN, HARVARD BUSINESS SCHOOL PROFESSOR, SPEAKING TO AN AUDIENCE OF CIOS AT *CIO* MAGAZINE'S ENTERPRISE VALUE AWARDS CONFERENCE IN FEBRUARY 1999

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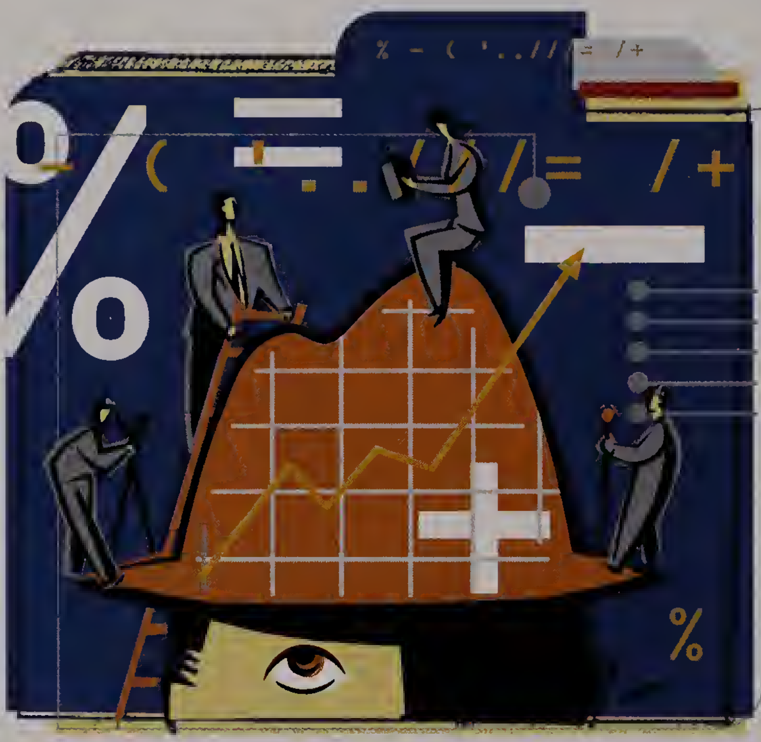
The IT Measurement Inversion

Are your IT investment decisions based on the right information?

BY DOUGLAS HUBBARD

BEFORE YOU MAKE A MULTIMILLION-DOLLAR investment in IT, you probably do a cost-benefit analysis. Of all the variables on that spreadsheet, which do you spend the most time and effort trying to estimate? Most organizations spend a lot of time estimating initial development costs but not so much estimating benefits, how fast people will start using the system or the chance the project will never be finished. If you calculate the economic value of additional information you need for more accurate ROI estimates, you see that the typical measurement priorities are often inappropriate. In fact, the variables that are most valuable for reducing uncertainty in ROI estimation are rarely represented on IT cost-benefit spreadsheets.

I call this paradox the "IT measurement inversion." I detected this effect as my client was rolling out a new IT decision-making methodology based on applied information economics (AIE). One distinctive feature of this approach is that it includes a measure of the degree of uncertainty for each variable in an ROI analysis. This gives us the foundation for another AIE figure: the economic value of information.



Measuring Uncertainty

Almost every variable in a cost-benefit analysis is uncertain. We don't know exactly what initial costs will be or how much an improvement in productivity will yield. Yet typically in the analysis of IT investments, every cost or benefit is shown as a single, precise number. This implies that the exact number is known, which is almost never the case. It is possible, however, to represent those values more realistically. We can use "probability distributions" to show how much we really know about each number in a cost-benefit analysis. Quantifying uncertainty is a prerequisite to calculating the value of information.

You may vaguely recall concepts like "90 percent confidence interval" or "standard deviation" from a college statistics class. Though your math skills may have faded, the concepts are fairly simple. A 90 percent confidence interval consists of two numbers—an upper and a lower bound—that represent a range that we can be 90 percent sure contains the true value. For training costs of a new system, most IT cost-benefit spreadsheets would simply use one number, such as $500,000. But perhaps all we can say is that we are 90 percent sure the training costs will be between $300,000 and $700,000. There is still a 10 percent chance that the real number will fall outside of bounds. We can use statistical representations (such as normal distributions, discrete binary and so forth) to determine the amount of uncertainty. Applying a normal distribution (not always the most realistic but the most straightforward example) to our scenario, we could use the standard deviation to express the uncertainty. According to statistical mathematics, there are 3.29 standard deviations in a 90 percent confidence interval. Another way to say this is training costs are a normally distributed number with a mean of $500,000 and a standard deviation of $121,580—the range ($400,000) divided by 3.29. Every uncertain number in the ROI analysis should be represented as a distribution to show its uncertainty. Once we have quantified the uncertainty of each variable, we can start calculating how much additional information is worth for each variable.

The Value of Information

Information has value because it leads us to better decisions. The method for calculating the value of information has been around for decades, an offshoot of game theory and decision theory. Roughly put, the value of information equals the

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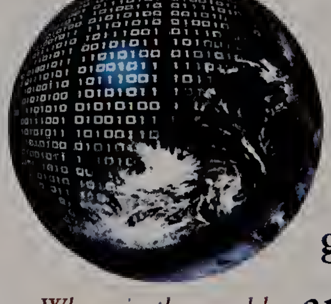

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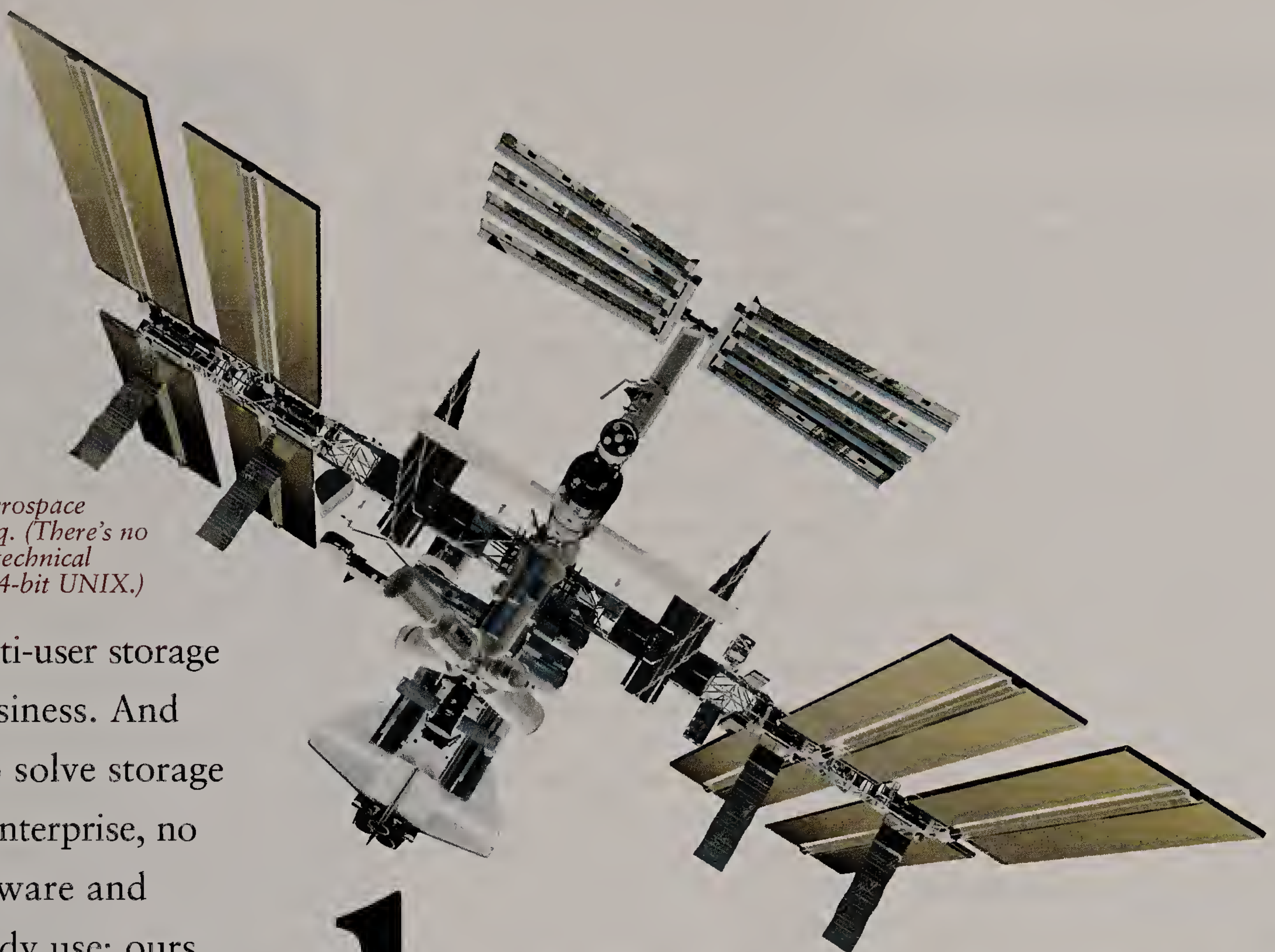

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chance of being wrong times the cost of being wrong. The cost of being wrong—that is, what is lost if your decision doesn't work out—is called an opportunity loss. For a simplistic example, say you're considering investing $1 million in a new system. It promises a net $3 million gain over three years. (For our example's sake, it'll either be completely successful or a total bomb.) If you invest but the system fails, your mistake costs you $1 million. If you decide not to invest and you should have, the mistake costs you $3 million. When we multiply the opportunity loss by the chance of a loss, we get the expected opportunity loss (EOL). Calculating the value of information boils down to determining how much it will reduce EOL.

The economic value of a variable in the cost-benefit analysis essentially tells how much the additional information about that variable reduces the EOL for the investment. Information about a variable that reduces the EOL by a lot strongly affects whether you pursue the investment. This is a sensitivity analysis of the decision that gives a dollar value for the information.

Even in projects with very uncertain development costs, we haven't found that those costs have a significant information value for the investment decision. In other words, information about the development costs did not lower the EOL as much as did information about other variables. The most important variables—those with the most uncertainty and impact on the decision—are rarely represented in cost-benefit analysis.

Truly Important Variables

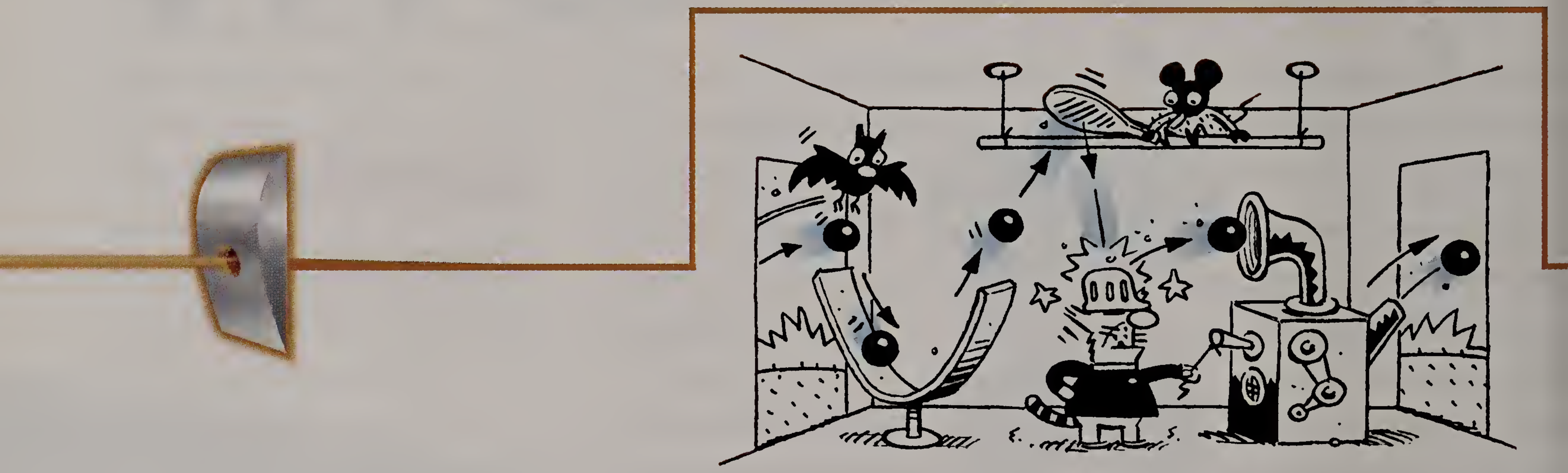
The single most important unknown is whether the project will be canceled. This is a binary phenomenon—it either happens or it doesn't—and so is represented with a single percentage probability (not a range). If cancellation occurs, no benefits are ever received; but at least some development costs accrue.

The next most important variable is utilization of the system, including how quickly the system rolls out and whether some people will use it at all. Like cancellation, uncertainty about how soon people use the system never shows up on most ROI calculations. Many simply assume that benefits begin upon implementation, with no allowance for ramp-up or difficulties.

Of course you need to estimate development costs when making a decision about IT investments. However, you don't usually need to reduce the uncertainty about those costs to make an informed decision. Reducing the uncertainty about the utilization rate and the likelihood of cancellation of a new system is much more important when deciding how to spend your money.

Beat the Paradox

Why the IT measurement inversion? Perhaps we focus on measuring what we feel comfortable measuring regardless of



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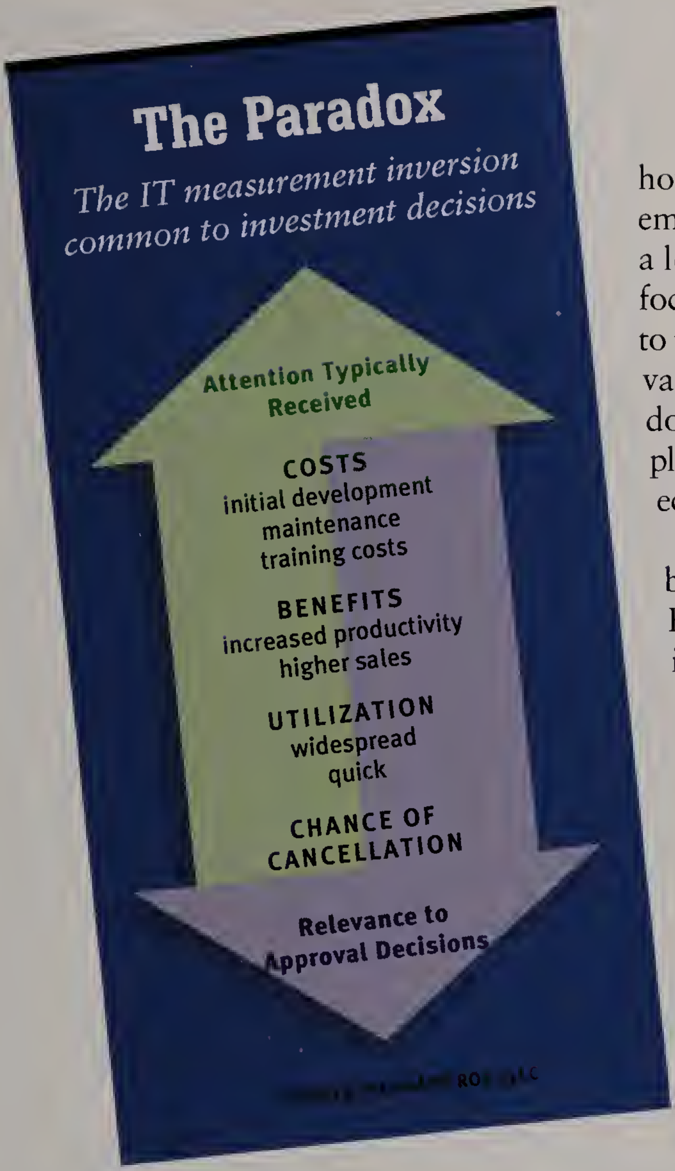

how important it is. The IT industry also emphasizes development costs; there are a lot of "software metrics" firms that focus on measuring development costs, to the exclusion of other more important variables. Another reason for the paradox may be simpler. Many people simply don't know there is a formula for the economic value of information.

Counteract measurement inversion by measuring the value of information. First, learn how to model uncertainties in ROI calculations. Start doing this as soon as possible, especially on your largest IT investments. Your organization may already have people with the statistical training to do this.

Second, for the investment decision, don't bother hiring software metrics services to reduce initial uncertainty about costs. A range of, say, $2 million to $4 million for an IT investment may seem very uncertain, but it is probably less so than some of the benefits. You may need to count function points later for managing programmers' productivity, but spend your money and efforts to reduce other uncertainties first. And be sure to consider costs for systems maintenance.

Third, take what you would have spent on software metrics and focus it on researching the system's benefits, how quickly people will start using the system, how much it will be used and what the risk of cancellation is.

To make the best investment decisions, IT management must learn how to compute the value of information, and start modeling utilization and cancellation in cost-benefit arguments. Once they do, measurements will be properly prioritized and the IT measurement inversion will disappear. CIO

Douglas Hubbard recently founded Hubbard Ross LLC in Glen Ellyn, Ill. He can be reached via e-mail at dhubbard@hubbardross.com.

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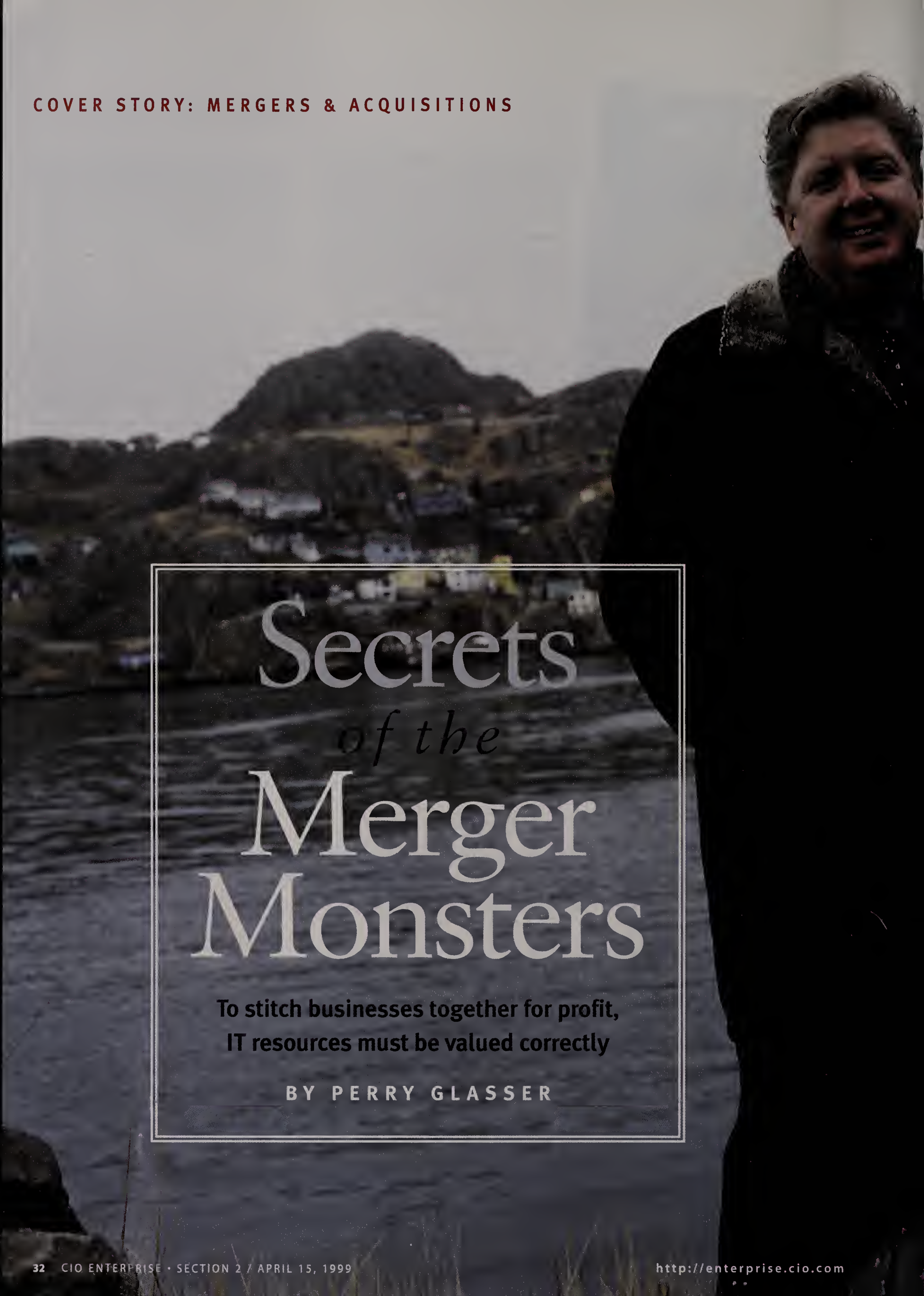

Secrets of the Merger Monsters

To stitch businesses together for profit, IT resources must be valued correctly

BY PERRY GLASSER

At Stratos headquarters in Toronto or here in Newfoundland, CEO Derrick Rowe (left) depends on VP for Technology John Mackey to help determine whether a prospective merger will float.

PHOTO BY DAN CALLIS / LIAISON INTERNATIONAL

Compared with a mergers and acquisitions team, Dr. Frankenstein had it easy. Frankenstein hoped only for a creation that might live, but executives dream of creating an enterprise that from birth moves like the offspring of a ballerina and an NBA forward. Doc F. could use whatever parts Igor dug up, but the parts of a business acquisition rarely fit together even roughly; they may not even be from the same species. Frankenstein's monster slept through his surgery, but executives are required to keep their subject conscious and functioning, even while amputating and rejoining major parts.

The key to creating a final entity that will be up and running swiftly with grace and power is to perfectly splice the tendril-thin nervous system of the living organism. If corporate nervous systems are to work as well as they should, every executive needs to understand the networks and systems that can move data and ideas around the world as fast as thought itself. Information technology (IT) may be a small item on a finance report, but if you neglect the basics of IT management in a merger, one dark and stormy night you

Reader ROI

READ THIS ARTICLE to learn

- The three stages of a merger
- Best practices for IT management at each stage
- Why all executives need to be alert to IT considerations during the process

will be sure to have an angry mob of stockholders marching on your office waving pitchforks and torches.

A 1998 study of IT's role in mergers and acquisitions conducted by Edward M. Roche, vice president and research director for the Kingwood, Texas-based Concours Group, in conjunction with Professor N. Venkatraman of the Boston University School of Management, found that the vast majority of mergers go through three major stages: strategy, valuation and transition. Each stage's main goal is to prepare for the next. And at each stage best practice IT management of people and systems calls for different approaches.

A key IT decision in one merger made Elf Atochem change its approach in the valuation stage, says Executive VP Jean-Claude Rébeillé.

PHOTO BY EUGENE MOPSIK

Managing in the Strategy Stage

At the strategic stage of any merger or acquisition, one company will be quietly eyeballing another, and discreet, oh-so-tentative initial contacts may be made. "A target company might not even know this is happening," says Roche. No one breathes a number—general interest, general talk, general visions are shared. When a company identifies a target for acquisition and begins risk assessment and readiness verification, that is to say, when broad round numbers start to flash on calculators, principals need to keep their lips sealed until the final hour—or risk botching the whole deal. Larry Freedman, senior vice president and legal counsel for PlatinumTechnology Inc., an Oakbrook Terrace, Ill.-based company that has acquired more than 70 others, tells of a case (not involving Platinum) where a deal evaporated because of loose lips. The premature announcement of the existence of talks by the target company's executives precipitated a mass exodus of its software developers. That intellectual asset—those developers—had been a major driver for the deal, and in an environment where IT staffing is a headache, the premium to be paid dropped by 90 percent. The deal fell through.

With dollar figures that make your telephone number, including area code, look like petty cash, mergers and acquisitions have gotten a lot of ink even outside the financial pages. But if you think that the high stakes in the M&A game mean the players have the processes down to a science, think again. Stratos acquired whole companies or parts of other companies five times in the past year, but the only thing that Derrick Rowe, CEO of the Toronto-based satellite communications company, is sure of is that no two mergers are alike. There are just too many variables of personnel, suppliers, customers and IT systems.

Rowe formed his company's strategy to consolidate existing communication channels on either supply or distribution sides of the business. "You're buying either a product source whose price is right or a valuable customer base," he says and, as an example of distribution-side strategic acquisition, points to Stratos's recent purchase of a company that specialized in communications systems for yachts. That's just one of the deals that has changed Stratos from a two-way radio, ship-to-shore utility for oil rigs off the Newfoundland coast to an integrated telephony, satellite and digital communications company; it also helped boost its revenues from $62 million in 1997 to $72 million in 1998. Rowe has full faith in his company's technical ability to make telephone, radio, e-mail and even Telex communications work seamlessly with each other, but he observes, "The big problem is integrating the backroom operations." Rowe fears that if customers perceive even a slight decline in such services as billing or support systems they will bolt to a competitor; thus he will not engage in negotiations without John Mackey, his vice president for technology, beside him at the bargaining table. No matter how appealing the financials may be, if Mackey declares a target candidate's systems will take too long to modify, Rowe will kill the deal. If the backroom operations can't mesh quickly, capturing the projected profits presented by a merger will prove formidable.

While subteams conjecture about how plants, labor, vendor contracts, legalities and government regulations will interact in the mix, only a top-notch information executive can say with certainty whether plug A will fit socket B. In short, CIOs need to be at the table early.

Elf Atochem North America Inc., the Philadelphia-based chemical subsidiary of multinational French Elf Acquitaine, accomplished three acquisitions during nine months in 1998, which totaled between $300 million and $400 million

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in activity. Executive Vice President Jean-Claude Rébeillé headed teams of five to seven executives for each deal—one chemical plant from DuPont Co., one chemical plant from Air Liquide in Canada and the total acquisition of four plants from Rohm and Haas Co. Rébeillé recalls that five years ago, when Elf pursued an acquisition, IT personnel were not at the table when money guys calculated discounted cash flows, analyzed labor contracts and scrutinized vendor agreements. "We assumed that once a deal was made, when it came to integration, all the rest that needed to be done in IT would follow." He purses his lips and smiles. "*Mais non*. That, of course, proved not to be the case." Now Elf Atochem's M&A teams always include Robert M. Rubin, senior vice president and CIO.

Managing in the Valuation Stage

The prospective acquirer can dominate the strategic stage, but once into valuation, both players need to put cards on the table to identify risks, evolve a budget and find the best opportunities for synergy—the magical combination of processes, customer bases or suppliers that will yield something greater than the sum of the parts.

This stage is touchy, touchy, touchy. Naturally, the content of these meetings is highly secretive, and they can be nerve-racking (see "Been There, Done That," below). Remember, everyone at the table is wondering about his or her personal future—the person sitting across from you might be your replacement, your colleague or your boss. "This is not the place to show ego. Be conciliatory, calm, low-key and secretive," Roche advises. "A blowup here has repercussions throughout the process. People, not balance sheets, decide whether the process will be friendly or hostile." Also remember that some kinds of information simply cannot be pooled at these early meetings. Exchanging pricing data, for example, can get the Justice Department alarmed about restraint of trade; if the parties at the table decide not to go through with the deal, that conversation starts to smell a lot like price fixing.

Executive teams from each side prepare discovery questionnaires for their counterparts—HR prepares a questionnaire for HR, logistics for logistics, IT for IT, finance for finance. Of course, internal organizations of the two companies may not always be identical, and sales folk may find themselves across the

Been There, Done That

William Lauterbach, former director of IT systems for pharmaceutical giant Ciba-Geigy Corp., recalls his role in the $29 billion merger with Sandoz in 1996 that created the new drug company Novartis AG.

ONCE THE WORD WAS OUT ON THE MERGER, I.T. had to be involved. At the time, it was the biggest merger ever in the drug industry.

Right off, we disengaged a number of projects in a way that did not affect the immediate operation of the business. Some IT projects got moved up front; some were dropped. We put our initiative for marketing systems on hold, for example. Nobody knew what marketing was going to look like anyway.

The first meeting between the merger teams was a meet-and-greet session, 30 or so executives from both sides. Then we exchanged a lot of e-mail and letters.

At our second meeting in Chicago, we got down to the hard business of disclosure. Eight or 10 of us from IT were there, the top people from each side. Both teams laid out in detail what kinds of hardware and software we used, how many people had what skills and where our IT shops were located. It was like playing poker or sparring at boxing. Our enterprisewide system was SAP; theirs was a combination of Baan and J.D. Edwards. Then late one night my hotel room phone rang and I got the warning: "Don't even have a cup of coffee with those guys at breakfast!" The Justice Department had become interested because of monopoly and restraint-of-trade issues, so we had to halt talks. In disclosure, conversations about vendors and pricing can be considered exchanging information that would hurt the business of our mutual suppliers if the merger never happened and we remained separate companies.

The deal was on hold for three months, though we had gotten the basics out of the way. Our side couldn't do any work on the merger, but we could do a lot of analysis. The government required Sandoz to divest a lot of its business in animal health and agriculture, and since it was working with a decentralized client/server system, Sandoz basically lost its infrastructure. As Sandoz was forced to lose sites, it lost key network components. So you could say that our mainframe system, which was all in one place, "won" because of government intervention.

It all shows that an executive has to be proactive. Keep people informed so that key personnel don't bail out as soon as they hear a rumor. When they ask questions, if you don't know the answer, share your ignorance. You have to be accessible to staff and keep information current so that no one feels as though they are being played with.

Editor's Note: *William Lauterbach now works as a senior consultant for the Kingwood, Texas-based Concours Group.*

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table from marketing folks. The idea is not to champion one organizational chart over another but to ready everyone for smooth integration down the road. Companies that have established themselves as M&A leaders guard the specifics of those questionnaires closely. They know the right questions asked the right way will elicit the best information. But typically an acquiring company's IT experts (or both, in a merger of equals) ask for a list of the most critical applications used in the target company, details of the reporting structure for personnel in the IT shop, the nature of recruitment procedures and hard questions about the company culture, vendors, budgets and current projects.

IT readiness for merger is determined by assessing five crucial points:

1. The ease or difficulty of integration
2. Opportunities for growth
3. Potential savings
4. Potential liabilities
5. The ever-churning IT labor situation

Once an initial offer is made, all the rest is dickering—it's called due diligence. Beans must be counted and figures firmed up.

Staff morale is especially tender during this stage. Once word of a proposed merger or acquisition is out, rumor mills start to grind while the photocopying machines run out of paper producing staff résumés. If key people hit the bricks, they take with them everything they know. In a hot labor market for IT personnel, massive defections can happen quickly—and that can be fatal to the deal. The valuation stage, when the secret is out but the content of talks is still shrouded, "must be the end of rumors," says Roche.

People have to know with reasonable certainty how long they will have their jobs. For example, Roche recommends guaranteeing employment for a year—anything to avoid the danger that the business will grind to a halt as the organization is gutted. The best way to manage that problem, says Roche, is "to have an expanding group of people beyond the core teams [implementing the merger]. Invite more and more people in. Of course, this has to be managed delicately."

Frank Donovan, a senior account manager for IT at Texas Utilities Co. (TU) in Dallas, says, "If you can get your IT people out front on due diligence, you'll do better." It's a lesson TU's Donovan learned too well during a 1997 $1.3 billion merger with Enserch, an integrated natural gas company also in Dallas. The deal suffered delays because the SEC and Department of Justice faced a backlog of regulatory reviews due to the huge number of merger announcements in 1996. Then the government's degree of apprehension about TU's case came as a surprise; TU officials thought

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it would be less concerned with a strictly in-state merger. Rank-and-file IT employees at Enserch and TU acted as though they were in a shutdown. Who could say which projects would go forward and which would die? "We gave retention bonuses and longevity commitments [to keep the business functioning]," but Donovan adds with regret, "we could have done more."

Managing in the Transition Stage

Donovan now manages his merger teams with an eye toward a smooth transition. Having representatives from each IT application development team meet once a week along with key business unit clients "avoids all the 'gotchas,'" he says. No one wants to learn too late that HR insists on an e-mail system for which marketing has no use. Donovan limits meetings to one hour. Team members draw up issues lists and examine scheduled implementation problems for ripple effects.

Frank Donovan of Texas Utilities keeps the goal in mind during transition: Make a chaotic and emotionally draining process as smooth as possible.

PHOTO BY DAN BRYANT

Best IT management practices in the transition stage require flexibility, but interrupting ongoing IT projects can precipitate opportunity losses and minor morale problems. For example, when Elf Atochem bought a hydrogen peroxide plant in Memphis, Tenn., from DuPont, naturally the factory was hooked up to DuPont's networks and systems. An acquisition might be legally accomplished at the stroke of midnight on a certain date, but if you pull all the plugs at once, the site will go dark. Ben Vitesse, Elf Atochem's director of SAP applications, slowed Elf's enterprisewide SAP project while it set up "SAP-Lite" at the Tennessee site. Accounts payable, tracking payrolls and other financial functions were piped back to the mainframe computers at Elf's Philadelphia offices, but shipping, for example, which can be better handled on the scene, was left down there. That quick and dirty temporary fix allowed faster movement from DuPont's systems to Elf's. What's the big deal? During the transition period, DuPont charged Elf a monthly fee in the mid-six-figure range for use of its IT systems, notes Rubin. The faster the acquired plant was put online with Elf's systems, the more money was saved. Making the effort to explain to a frustrated staff that reallocating their time is tactically necessary is well worth the trouble.

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Have a question about managing IT during a merger or acquisition? You can pose it to Virginia Reck, senior partner of Kendall Consulting Group. From now until April 30, Reck will be available at **asktheexpert@cio.com** *to offer advice on surviving a merger or acquisition.*

Speed is always important. If a company doesn't capture profits in the crucial first five or six months, it may not be able to at all. Markets change. It's one thing at the strategic stage to project savings—it's something else during transition to respond to a drop in the cost of oil. Or of ships, shoes or sealing wax. The more distant the time horizon, the less accurate predictions about profit will be.

And beware of all sorts of wolves that lurk in the forest ready to prey upon your plans. Rubin tells how a software vendor presented Elf with a bill for several million dollars three months after another merger was closed on the theory that the new corporate entity had never contracted for the software in operation at the acquired site. "He claimed that the change in [company] name invalidated the contract," Rubin explains, "so I picked up the telephone, called his home office and told them if they wanted to continue to do business with us, we required a new rep."

Chances are you won't make or break a deal based on the IT factor. That's absolutely appropriate—business logic should always come before systems considerations. But any executive who goes forward with M&A strategic plans without understanding the management techniques necessary for IT risks meeting the fate of Dr. Frankenstein. You'll recall that the monster, the doctor's own creation, returns to throw him out the window of a burning windmill. With doom like that staring you in the eye, be sure the living entity you build is happy with your management at each stage of its creation.

Senior Writer Perry Glasser can be reached via e-mail at glasser@cio.com.

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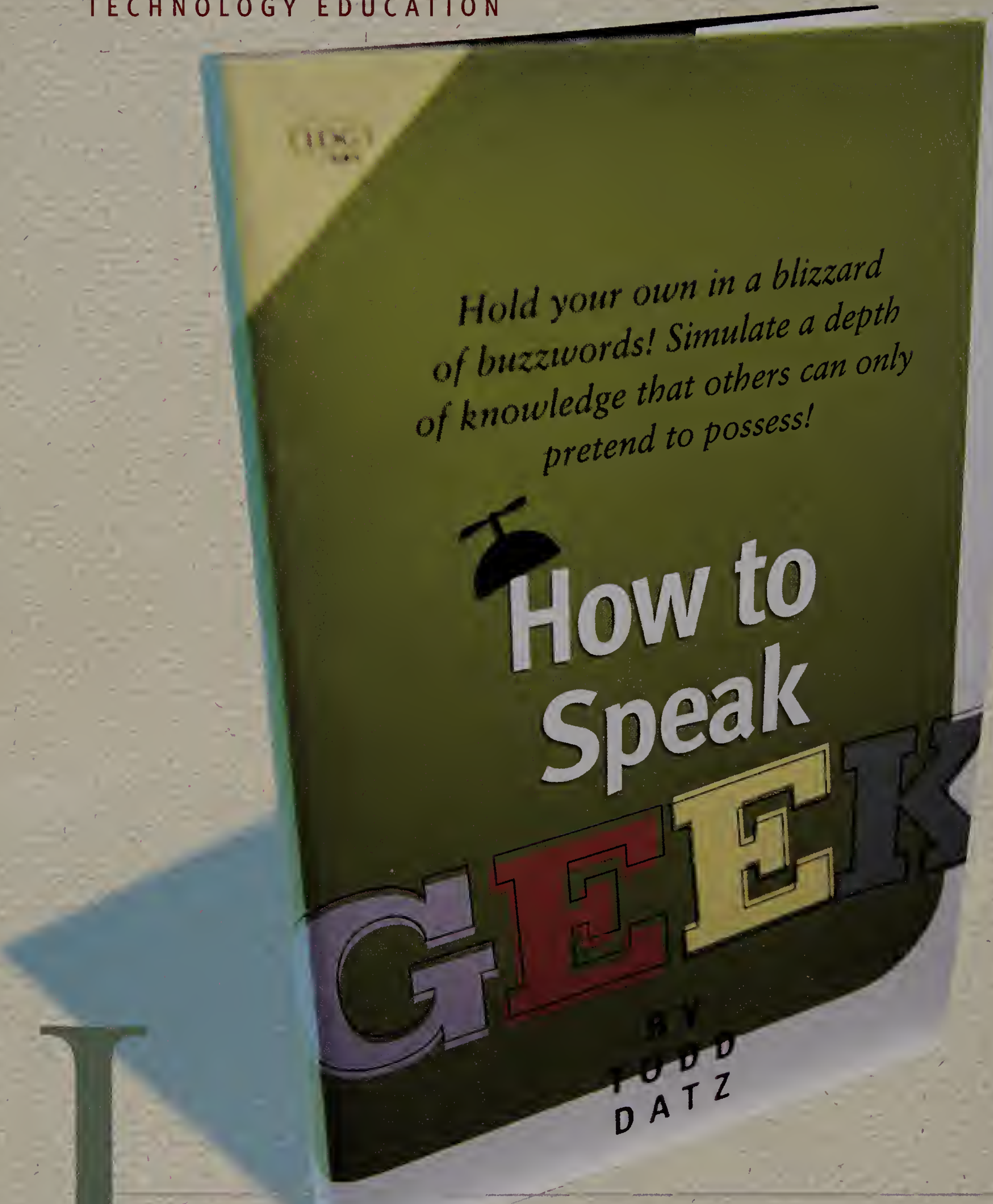
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- Some of the major IT issues facing executives today
- Definitions of basic technology terms
- How to impress your CIO at the next IS steering committee meeting

Life's been pretty darn good to you. Every morning you wake up, tighten the knot on your Armani tie, kiss your family goodbye and pull out of the driveway in your gleaming new Range Rover. Off you head to your job at a multibillion-dollar company, which, thanks in part to your stellar contributions, has achieved four straight years of record-breaking growth and profit. Your assistant hands you the day's schedule as you stride into your spacious office, steaming cup of Starbucks coffee in hand.

"I deserve to be here," you think, as you wheel your chair around to gaze

ILLUSTRATIONS BY MARK TELLOK; PHOTO BY VITO ALUIA

out at the world from your 45th-floor window. There is nothing that surprises or intimidates you, even in today's predatory world of global business. You reign as an All-Knowing Oz in a World of Cowardly Lions, a honcho fit for the 21st century.

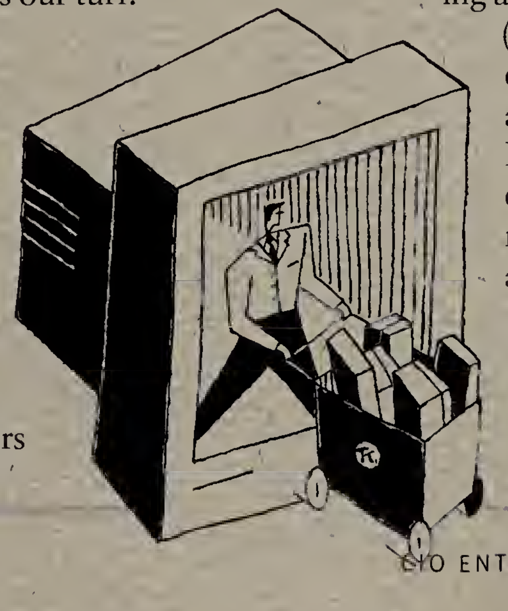
As your computer screen flickers on, there's only one thing that will slow you down as you get set to begin another kick-ass day. You can't remember how to access your e-mail.

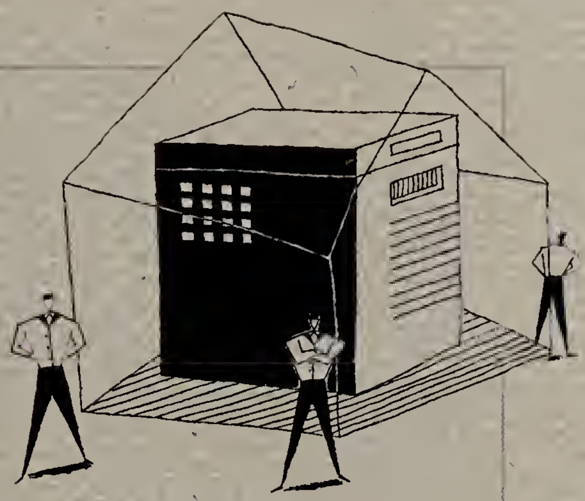
Face it CXOs—technology ain't your strong suit. Yet today technology plays a critical role in every facet of company decision making, whether it be improving customer service or making a manufacturing line more efficient. With that in mind, this primer aims to ground you in some of the key IT topics of the moment. It's light enough, we hope, to make the dreaded subject interesting; yet it's substantive enough that you can ask intelligent questions of your CIO without those questions becoming fodder for CXO jokes at the next IS department kegger.

"I thought mainframes were dead. What happened?"

A mainframe is a large computer that handles business transactions. The name derives from its size and processing power. First introduced in the 1950s, mainframes became ubiquitous over the next four decades and can be found in the data centers of most, if not all, large enterprises. While today's average PC contains exponentially more computational oomph than any of the early mainframes, the breed has kept pace, packing many more millions of instructions per second into a shrinking package.

Mainframes play host to and process large amounts of data—they are workhorses, plowing the fields with nary a whinny, but they are dismissed as unsexy by some technophiles due to their ancient bloodline. Mainframes are usually connected to thousands of dumb terminals. The essential attribute of a mainframe is that processing is undistributed—the stereotypical view is that of a huge server enclosed in a glass house guarded by an elite team of IS staff with a street-gang attitude that says, "Data is power, and this is our turf."





Sometime in the late 1980s, a technology called client/server computing threatened to displace the mainframe. In the client/server model, processing power is distributed flexibly across networks of interconnected workstations and servers, with client PCs taking on many functions formerly centralized on mainframes. This frees the mainframe to handle specialized tasks such as security and database management. At the same time, client/server end users gain something long denied them: real-time access to the "live" (meaning most current and relevant) enterprise information.

Many technologists believed that client/server would eventually render the mainframe useless, a doddering dinosaur of an early Technozoic Era. However, implementing client/server in large enterprises turned out to be fraught with difficulty, complexity and high cost. And mainframes came to be seen as possessing persistently valuable legacy data and applications. So instead of going away they continue to play a useful role in a multitiered computing architecture (see "Are architecture and infrastructure the same thing?" Page 48). CIOs continue to buy these behemoths because they are reliable and secure. Client/server, the trendy infrastructure of the 1990s, remains popular, especially in today's Web-connected environment, though technologists no longer believe it will solve Russia's debt crisis or improve Jim Nabors' record sales.

"What's the latest buzz on e-commerce?"

You've read about it, you've sat through gee-whiz presentations about it, and CIOs better damn well have big plans for it, right? Well, yeah, probably.

Electronic commerce (or e-commerce), fueled by the growth of the Internet, is restructuring industry value chains and may ultimately have as big an impact on the conduct of business as electric power or the assembly line.

Today e-commerce encompasses the full value chain—basically, anything that involves transaction-based interenterprise or customer-facing technology could fall under the e-commerce mantle. It includes using technology to achieve a sale, Web-based marketing and sales, electronic data interchange (EDI), customer and product databases, electronic catalogs, ATM networks and electronic payment systems. Businesses are using the Web to wring every efficiency they can out of their relationships with suppliers, factories and distributors, reducing the time it takes to design products, fulfill orders and track sales and inventory.

Business-to-business purchasing over the Web is more than a blip on

Web Wide Words

Let us link you to the terminology of the Information Age

Internet: The Net comprises the computers, networks and services that allow information to be shared across the globe. It is the network of networks.

Intranet: The collection of internally used Web resources, usually kept within a secure boundary known as a firewall.

Extranet: Controlled-access Web resources made available to a limited community of customers or trading partners.

World Wide Web (the Web, for short): A portion of the greater Internet that allows information to be published and viewed in hyperlinkable, interactive, graphically rich files.

Browser: Software that allows a user to access, view and navigate among files on the Web through a user-friendly interface.

Firewall: Software and/or hardware that provide security by isolating a company's computer network from the rest of the Internet.

Java: Programming language created by Sun Microsystems Inc. that can run on any computer. Because it's designed for network computing, it is ideal for the Web.

Search engine: A tool that allows users to seek relevant Web information by typing in a key word or words.

Encryption technology: Supports a secure software environment by taking transmitted information (a credit card number) and changing it to a string of incomprehensible characters.

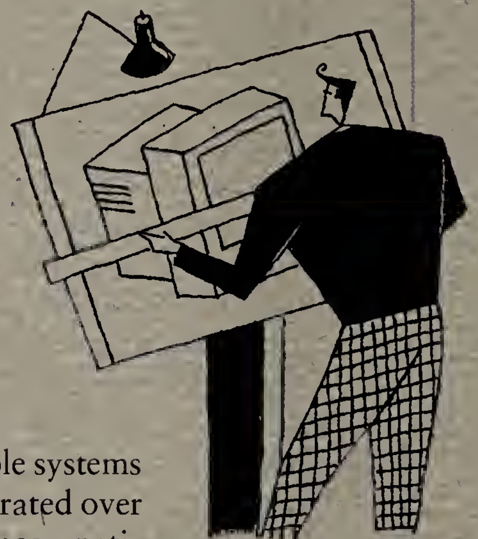
Cookie: If you have a browser on your computer, you have a cookie file. When you view a Web page, that Web server writes a cookie into your file. The cookie might contain a record of your visit and the kind of information you looked at. Companies with Web sites drool over cookies because they enable them to record data about their customers.

corporate radar: *Business Week* reported that by 2000, General Electric Co. expects to be buying $5 billion of supplies online. And business-to-consumer commerce has taken off like an F-17—goods and services sold over the Net to North American households topped $8 billion in 1998, according to Forrester Research Inc. By the end of 1999, Forrester predicts that 38 percent of U.S. homes will have access to the Net, so the potential consumer revenue streams are enormous. While it's hard to make sense of the hugely inflated market capitalizations of online companies like Amazon.com Inc. and E-bay Inc., many regard their stock performances as a future vote of confidence for online commerce.

Security remains an important issue, however. Firewalls and encryption technologies help keep hackers at bay (see "Web Wide Words," above). And John and Jane Doe's much-discussed fear of entering credit card numbers online is rapidly diminishing—Internet sales during last year's holiday season more than tripled those of 1997, suggesting that convenience has supplanted anxiety. Before investing big-time in e-commerce initiatives, however, executives must wrestle with questions of cost and ROI. Companies may need to focus on the long-term value of e-commerce rather than on the hefty upfront costs, which can cause heavy sweating and trembling speech in board meetings.

"Are architecture and infrastructure the same thing?"

Picture a brain-damaged spider trying to weave a delicate, silky masterpiece. Now, visualize a CIO attempting to make sense of his or her company's computer architecture. Not a pretty sight.



Computer architecture refers to the blueprint of a computer system, including both the layout of the system and how the processing workload and application logic are distributed. It defines standards ensuring that hardware and software from different vendors will work together and that data can be shared across different platforms. Most large companies have a number of incompatible systems that have been carefully integrated over the years. The causes of this incompatibility have included a lack of standards and a bunch of vendors maintaining their advantage by pushing systems that claim to be based on standards but sometimes play fast and loose with them.

By contrast, infrastructure consists of the physical components of the computing architecture—wiring, routers, switches, middleware, operating systems, servers and sometimes desktop PCs. Most of this stuff is invisible to you. However, when your computer freezes or your network goes down, it doesn't seem so invisible anymore. Next time that happens, at least you'll know to scream, "You gollydarn infrastructure!" before you sneak out to play a quick 18 holes.

"I acknowledge my lack of knowledge about knowledge management. Please help."

If you believe the hype, knowledge management (KM) will do everything from vaulting your company to the top of the Fortune 500 to removing those pesky grape juice stains from your tie.

Knowledge management describes the efforts by organizations to find, collect and organize the intellectual capital—knowledge—of their companies. Employees are encouraged to share their knowledge and use the knowledge of others, both inside and outside the organization, to help themselves and further company goals. The payoff for companies includes improved project coordination, better teamwork and closer customer relationships.

Operator Assistance

The 411 on telecommunications talk

Bandwidth: The amount of data a network can transport in a given period of time. Higher bandwidth means more data per second can be transferred.

Broadband: A network that provides very high bandwidth.

ISDN (integrated services digital network): International communications standard for transmitting voice, video and data over existing telephone lines. ISDN uses digital technology, which allows data to be transmitted much faster than standard phone lines.

LAN (local area network): A communications network that connects users within a single location, such as an office.

TCP/IP (transmission control protocol/Internet protocol): This is one of the core standards of the Net and makes communicating among all sorts of different computers possible.

WAN (wide area network): A communications network that connects widely separate locations. Think of WANs as the interstate highways and LANs as the secondary roads connecting them.

Ethernet: A LAN standard used in many organizations.

All KM efforts begin with content of various kinds that might have value to others: best practices gleaned from a recent project, a conversation with a peer at a conference, your company's HR manual and so on. The information could reside on a corporate intranet or in a database accessed using groupware (specialized software, such as Lotus Notes, that supports collaboration and communication among groups). Some companies even have chief knowledge officers at the helm of their KM efforts (though these folks often stand on the fringes at business conferences to avoid having to explain their titles).

So now you understand all the fuss, and you've just told yourself you'll sign a blank check to the next KM consultant who walks through your door. But before you do, take a deep breath. While many companies claim to have significant knowledge sharing going on, with reams of data in their Notes databases to prove it, the reality is their employees may never use it. This is because they may not know it's there or because the database is a disorderly dumpster for informational bric-a-brac. Similarly, workers may be reluctant to share the knowledge in their brains and on their desktops with others—after all, knowledge is power, and the impulse to hoard rather than share is strong. The key ingredient to successful KM, therefore, is not some off-the-shelf technology sold by teams of eager consultants promising the moon but delivering only a satellite or two. Rather real KM—getting, refining and sharing information across the business—requires enormous organizational change. Only companies willing to remake their cultures around the value of sharing information and insight will receive the much-touted but rarely delivered benefits.

"Internet, intranet, extranet—what the heck is the difference?"

Less and less, as it turns out. When businesses fell head over heels in love with the Internet, Web sites began popping up like crocuses after a spring rain. "We are here!" they seemed to shout. "And aren't we wonderful?"

In these early spasms of creation, outward-facing Internet sites and inward-facing intranets were reared by distinctly different parents—siblings separated not merely at birth but well before it.

Marketing and corporate communication groups took custody of everything that looked out upon (and was accessible by) the world (Internet sites); IT departments and (sometimes) corporate librarians took custody of the intranets, which aimed at being information repositories and process-streamliners.

In those early, willy-nilly efforts hardly a thought was given to enterprise Web strategy. The possibility that an intranet might have interlocking interests with an Internet site seemed remote (after all, they were kept apart by that forbidding mechanism, the firewall).

Ultimately, a third sibling came along: the precocious and highly sociable extranet. Through the mediating auspices of extranets, the barriers separating the siblings have become less distinct than before. Because of its interenterprise nature, an extranet often brings partners in through the firewall and enables their interaction with internal business processes. Likewise, an extranet can draw upon the resources of Internet sites. So creating and sustaining this extroverted third sibling can require coordination across multiple enterprise functions and activities.

As a result, business enterprises now recognize the need for a coordinated, overarching strategy that artfully unifies (or at least acknowledges the interrelationship of) these three Web resources—each of which increasingly draws upon the power of back-end legacy systems and business processes.

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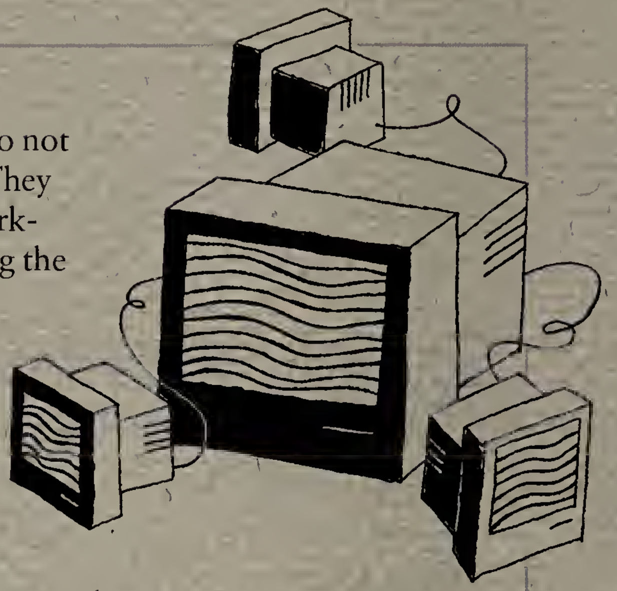
For an online version of this article, to which we will be adding new entries over time, go to **enterprise.cio.com/geektome.**

"Hey, what's the deal with network computers?"

Network computers (NCs) are PCs minus a hard or floppy drive, which means software applications and files cannot be stored locally. Instead, applications reside on a server. Think of the server as a giant vending machine, a pack of Chuckles as an application and yourself as an NC in dire need of a sugar fix. If, on the other hand, you were a PC, you could swallow 75 cents and self-dispense those chewy red, green and yellow squares. Unlike PCs, NCs cannot run by themselves; they depend on a network. Bottom line: PCs are more powerful than NCs.

NC vendors tout—and CIOs are entranced by—the stripped-down computers as cheaper alternatives to PCs, which generally cost more per unit and are expensive and cumbersome to maintain. NCs are easier to administer, meaning fewer frantic calls to the help desk from Jones in finance when he loads a homegrown accounting program onto his PC. Simplified software upgrades are another benefit. However, NCs do not come baggage-free. They require higher network-related costs, reducing the savings. They aren't suited to users who need a lot of processing power nor to remote users (sending data back and forth between a server and a laptop is messy). And just try telling the executives in your company that you're replacing their PCs with IS-controlled boxes—taking away their desktop power may not be a smart career move.



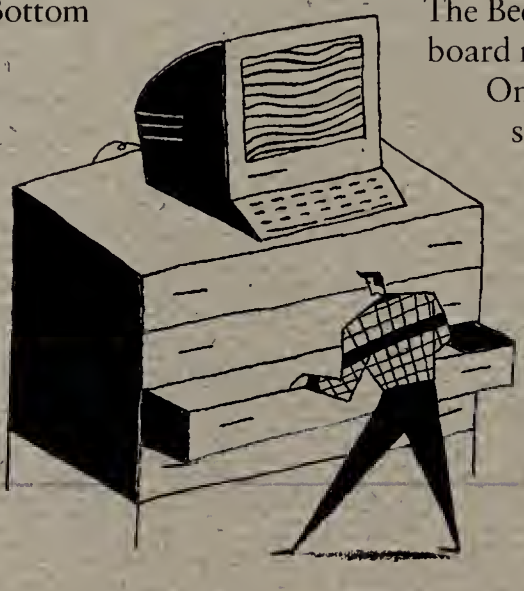
Most companies are currently sitting on the sidelines, waiting for the battle among competing vendors—Microsoft Corp., Sun Microsystems Inc. and Oracle Corp., to name a few—to play out before deciding whether to buy NCs. At the moment, there is no clear standard nor is there a clear winner. And to confuse things further, vendors offer NCs with PC characteristics and PCs that are dumbed down.

Few companies that buy NCs will completely replace their PCs. Instead, NCs may become popular for certain applications, such as call centers, reservations and order entries. PCs will continue to rule the roost in companies for the time being.

Solitaire anyone?

"I hear a lot about data warehousing and data mining. What are the benefits? Are there any drawbacks?"

Having trouble visualizing a data warehouse? Think of 12 fraternity brothers stuffing themselves inside a Volkswagen Beetle. Each drunken frat boy represents reams of company data. The Beetle is the warehouse. The dashboard represents the...oh, never mind.



One of the more hyped technology solutions in recent years, data warehouses have become *de rigueur* in many large companies. A warehouse is a database that holds large amounts of historical business data in one place. The wonderful thing about warehouses is that they

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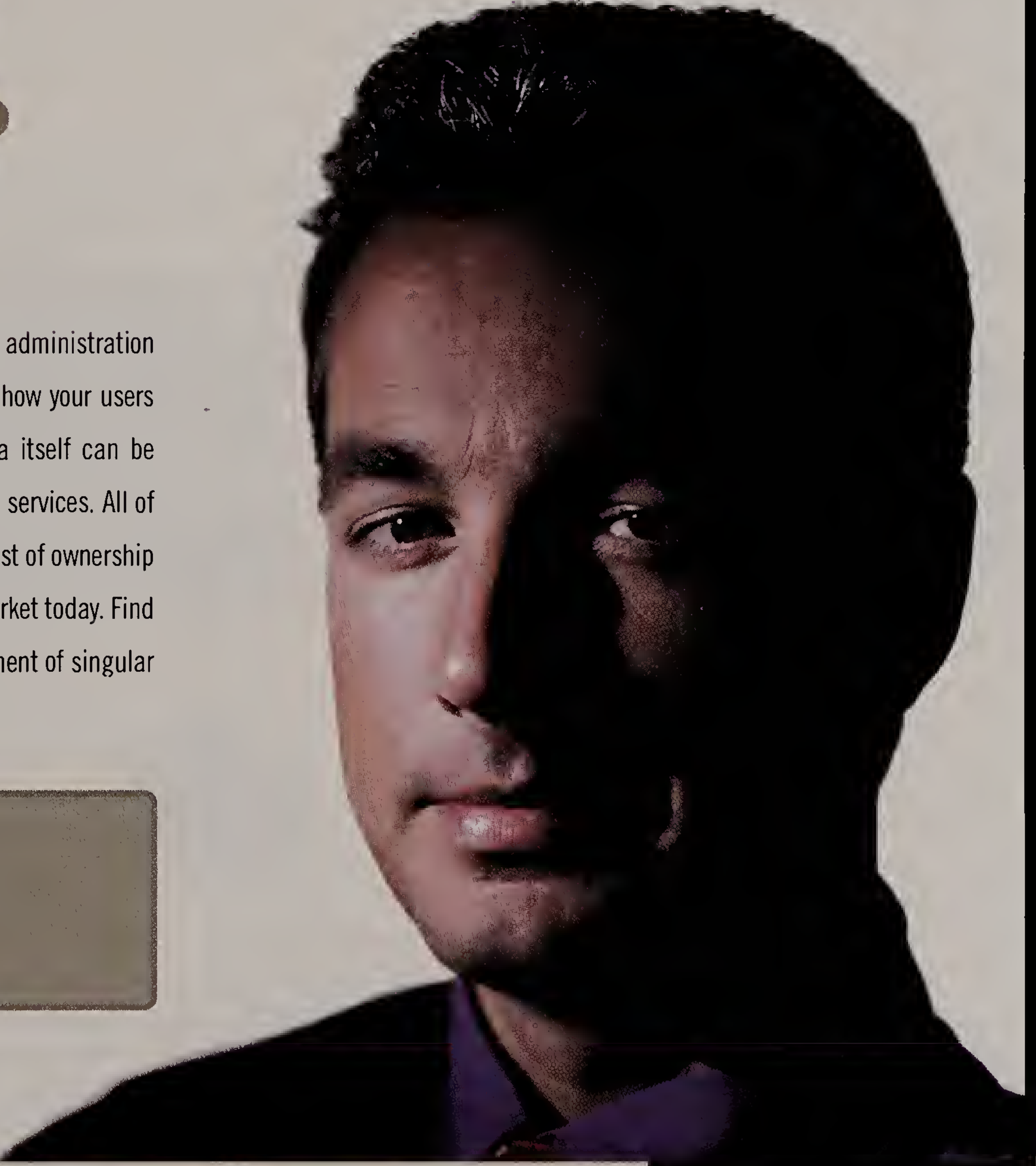

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collect data from across the enterprise and make it easily accessible for analysis. For example, a retailer might collect a customer's demographic information, purchases, returns and credit card usage. Data like this can help businesses improve customer service and explore new business opportunities.

Data mining uses automated tools to extract data from a warehouse in order to analyze patterns, trends and relationships. By mining, companies aim to refine large clots of data into useful information. A credit card company, for example, analyzed two years of customer payment data and discovered that reducing minimum payment requirements for customers consistently near their credit limits increased their average balances, which generated more interest revenue for the company. Some banks use mining tools to determine how customers will react to interest rate adjustments.

Not all data warehouse projects succeed, however. Many an expensive project hits the skids because of a lack of partnership between business managers and IS, unclear business objectives and metrics, and a failure to comprehend the enormous investment needed in people and resources. A bevy of data mining tools on the market means that companies must do their homework to make sure they're purchasing the right tools.

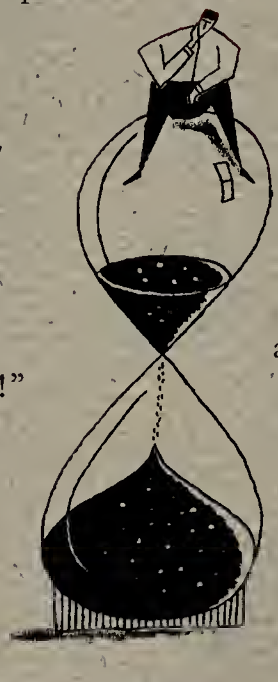
Hot Button

Intel's Pentium III chip

WHEN INTEL CORP. INTRODUCED THE NEWEST VERSION OF THE world's most popular computer chip in January 1999, the company was met with a maelstrom of protest. Privacy advocates decried a Pentium III security feature that identifies PCs through the chips' serial numbers, which they claimed compromised users' online privacy. Intel claimed the feature was intended to promote security in e-commerce transactions because online merchants could use the serial number to authenticate a user's identity. Intel has since attempted to defuse the controversy by saying it would ship the chip to computer makers with that feature turned off, suggesting that consumers would have to turn it on to enable the self-announcing serial number. Privacy advocates remain unconvinced, however, calling it an unreliable solution and observing that PC makers themselves have an interest in turning the feature on (for example, as a way of tracking help desk use and customer complaints).

–T. Datz

"Why does it take so long to install an application on our network?"



Or to rephrase the question from an executive's point of view: "Why the #!&$ does it take so #!&$ long to install an application on our #!&$ network?!"

The answer lies in a word: integration. Integration involves making computer applications that were never meant to talk with each other as conversant as Sam and Cokie on Sunday morning. Why all these mismatched applications? Traditionally, each function within an organization had its own system; there was little need to cross-link information among systems. Today, as barriers between functions continue to dissolve, companies are increasingly sharing data enterprisewide—a bank's marketing department wants customer information from finance for a new campaign, a hospital needs patient data stored in different systems in different locations. However, because there have been relatively few standard platforms over the years, those creative IS folks need to write new software programs and use all sorts of gizmos, such as bridges and gateways—think Scotch tape and chewing gum—to allow applications to work together.

If you're starting to think that all this layering of pears upon apples upon oranges seems a bit tricky, you're right. In fact, integration remains one of the major IT challenges facing companies today. Businesses can't afford to throw out old systems and they can't get everything they need from off-the-shelf applications. So the challenge is to integrate in the simplest, most efficient way possible, which is kind of a long oxymoron.

To deal with this chaotic swirl, some IS departments employ single-solution providers, internal integration teams and enterprise resource planning (ERP) products that integrate all a company's functional processes with one software package. These efforts buffer the screams but don't solve the nightmares.

So if you're wondering why your company's new e-mail package took six months to install, blame it on #!&$ integration.

Features Editor Todd Datz can be reached via e-mail at tdatz@cio.com.

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The New Realm of the Co

A determined leader and a few crazy years remake the money-maker

BY CAROL HILDEBRAND

IT'S DIFFICULT ENOUGH FOR THE AVERAGE CEO to satisfy a board of directors—even tougher for a corporate turnaround specialist, who's bound to make some unpopular decisions. But how would you like to transform an ailing company while reporting to 535 people? Worse yet, 535 people much inclined to internecine bickering?

That's the challenge Philip N. Diehl took on when he became director of the U.S. Mint in 1994. He's spent the past five years on Capitol Hill, persuading his "bosses" in the House and the Senate to pass the legislation he needed to build a new organization. And as the laws have changed, Diehl has turned the $1 billion government bureaucracy into the closest approximation of a private sector company that the re-inventing-government crowd has yet to see. He's instigated a series of strategic, cultural and technical revolutions. He's reorganized the Mint from director to janitor, asked his employees to learn a completely new way of doing business and tossed a massively complicated computer system on top of all that change. At times, he says, it felt like a war being fought on multiple fronts, and he had a devil of a time keeping the chaos from overwhelming his troops. But the campaign has paid off: The Mint is one of

Reader ROI

IF YOU DON'T READ THIS, you'll miss out on how

- A government agency remade itself in the image of private enterprise
- The U.S. Mint pulled its legacy systems into the 1990s
- Mint workers evolved from bureaucrats to customer-responsive employees

in

U.S. Mint Director Philip Diehl did not treat the old agency culture with kid gloves.

the nine organizations originally chosen by President Clinton and Vice President Gore to pursue "performance-based organization" status (government-speak for behaving like a private sector company). It also now ranks second only to the former Mercedes Benz Co. in customer service, according to a study by the University of Michigan.

Nancy Killefer, the assistant secretary for management and CFO at the Department of the Treasury, gives Diehl and his management team a lot of credit for the job they've done. "Phil brought about a number of important changes at the Mint," says Killefer, adding that Diehl and his team "have collectively provided leadership across the Mint and done a very fine job."

> *"Things did get heated, but it was my responsibility to keep us motivated and on schedule."*
>
> –JACKIE FLETCHER, CIO, U.S. MINT

Breaking the Mold

A former chief of staff for ex-Treasury Secretary Lloyd Bentsen, Diehl says he's always been intrigued by the Mint because, unlike most government agencies, it actually produces and sells a product. That made it an obvious candidate for the federal improvement initiative known as the 1993 Government Performance and Results Act. "I saw it as a diamond in the rough," says the 47-year-old Texan. "Here's an agency that actually has real customers."

But when Diehl was confirmed as director by the Senate in June 1994, the Mint also had real problems. It was so disorganized, according to an article in *The Washington Post*, that nobody knew how many coins were in inventory at one time, even though the Mint's chief responsibility was to produce an adequate volume of coins for circulation. The Mint's coin plant superintendents—in Denver, Philadelphia, San Francisco and West Point, N.Y.—ran their groups like "small, balkanized fiefdoms," recalls Diehl. Moreover, the Mint's sideline business of producing, selling and marketing collectible and bullion coins (otherwise known as numismatics) was in dire financial straits—but since the Mint ran on government appropriations, it was difficult to instill a sense of fiscal urgency.

Likewise, an organizational focus on customer service was anathema to the Mint. Coin collectors had long complained that it took months to receive orders, but, says Diehl, Mint workers just shrugged it off. "We were a monopoly, so why listen?" he says, describing their attitude. The familiar fatalism of a long-standing bureaucracy hung, foglike, in the D.C. headquarters.

Diehl decided to concentrate on customer service and the Mint's financial mess first. He brought in Treasury alumnus John Mitchell to deal with the numbers. And he tossed down a gauntlet to the customer service folks by announcing publicly that the Mint would start shipping 95 percent of its orders within six weeks. L.L. Bean might scoff at such turnarounds, but it was unheard of at the Mint. "I did it to hold [customer service's] feet to the fire," he says. "I'm not very patient with that kind of complacency." (Mint employees responded and were shipping orders within four weeks.)

Diehl next attacked the issue of the feudal superintendents. The trouble was that they, along with four other senior positions, were presidential appointments, and the appointees "didn't see the head of the Mint as their boss," says Diehl. He worked his contacts at the Treasury and started the governmental gears grinding. It took a year and a half, but he finally won congressional approval to switch 4 out of 10 appointed positions to civil service jobs and eliminate 5 positions altogether. (One appointee remains on staff, he admits sheepishly: himself.) Out went two of the incumbent superintendents, replaced by Diehl's hires recruited from the private sector.

Learning to Earn

Even the snappiest of corporate managers would quail at the Mint's byzantine financial rules, which were written into federal law. "There were five different funds that interacted," says Diehl. "It was mind-boggling how complicated it was." So in 1995, Diehl trudged up to Congress again and cajoled and persuaded his way through the banking and treasury committees of both the House and the Senate.

The resultant legislative changes freed the Mint from funding by appropriations—about $60 million annually. The Mint would finally be able to plan capital expenditures as it pleased and plan ahead more than one year. Rather than using money that came with congressional strings attached, the agency would generate a budget from its ability to manufacture and sell coins, a step that would help burn off that bureaucratic fog with the glare of an increased urgency for profits.

But ironically for a monopoly, the Mint faced hurdles in its

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When Change Makes Sense

The Mint packed five major projects into as many years

1994

1995

1996

Project 1
Customer Service

February 1994
Diehl issues customer service edict

June 1994
Service target met

October 1995
Consultants begin customer service overhaul

Project 2
Strategic Planning

October 1995
Rudimentary strategy plan written

March 1995
John Mitchell hired as deputy director

September 1995
David Pickens starts as associate director of numismatics

November 1995
Mint switches from appropriations-based budget to profit-driven one

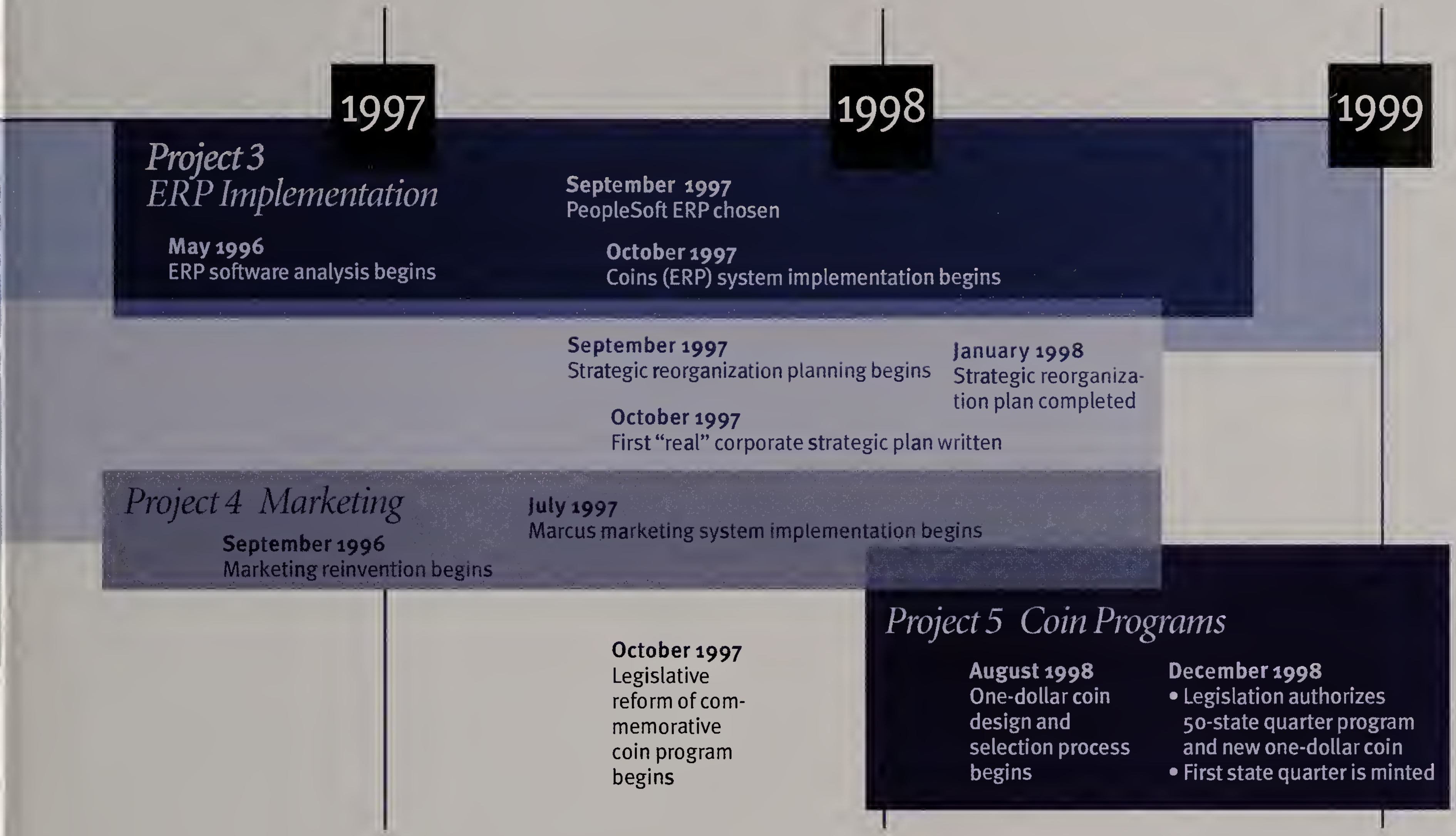
quest for profitability. Coin usage was down, partly victim of the increased use of credit cards and other forms of electronic payment. The numismatics business, with a shrinking customer base of mostly older men, was also burdened with the albatross of an expensive congressional commemorative coin program that had much to do with political influence and little to do with customer demand. And while Diehl's customer service edict had helped cut product delivery time, he and Mitchell, who by now was deputy director, knew that the Mint's service still lagged. The two realized that profitability was inextricably linked to its customers' wants and needs and that the numismatics division must reflect that vision. Diehl brought in David Pickens as associate director for numismatics to effect the change. Says Pickens, "Phil [Diehl] laid out a vision of a more customer-oriented business that was intriguing to me," especially as the plan involved a government agency that Pickens, a former Mint employee, had good reason to know was not big on customer service.

Pickens and his marketing team commenced building a blueprint for the renovation of the numismatics marketing group. Meanwhile, Diehl brought in a customer service consultancy to benchmark Mint performance against mail-order greats such as L.L. Bean and Lands' End. "We were, frankly, embarrassed," Diehl says of the results. The consultancy used benchmarks in 21 categories to create a set of about 35 customer service metrics, such as how long it took to fill an order, issue a refund or answer customer questions. These measurements were tracked on an hourly, daily, weekly and monthly basis, and the customer service folks use them as a barometer of success in meeting their target goals. For example, if it took the Mint 34 days to send a refund and the industry average was 7, the system helped the service representatives measure how far they were from that goal of 7 days. The Mint upgraded the telecommunications system with a $9 million investment in fiber-optic call management systems and videoconferencing technology. The result? Customers got their coins in two to three weeks.

As part of the numismatics reorganization, Diehl returned to the now-familiar halls of Congress and began his assault on congressional commemorative coins program. This was a favorite serving of pork for congressional delegates because the coins carried a surcharge that went to lawmakers' pet charities. Trouble was, every year Congress ordered as many as four or five of these coin programs, which often involved millions of coins. Some sold, but many languished in inventory, and the Mint had to eat the loss. (Pickens cites the huge Olympic Coin program as a major money-loser.) Working with Rep. Michael Castle, Diehl convinced Congress to cut down its commemorative coin addiction to two a year, reducing annual mintages by 90 percent.

Fueled by their early success with customer service, Pickens and his team grew downright nosy about who their customers were and what they bought. The tantalizing database of order information on the Mint's legacy mainframe system taunted them. If they could only get at that information, the Mint could target customers more effectively and better forecast market demand. For example, the Mint typically mailed 12 to 15 promotions a year. Some were for $8 coins, others for $1,500 rarities. "They're for very different markets, but we sent everything to everybody," sighs Diehl. Why? "We ran

PHOTO BY VITO ALUIA



Project 3 ERP Implementation

May 1996
ERP software analysis begins

September 1997
PeopleSoft ERP chosen

October 1997
Coins (ERP) system implementation begins

September 1997
Strategic reorganization planning begins

January 1998
Strategic reorganization plan completed

October 1997
First "real" corporate strategic plan written

Project 4 Marketing

September 1996
Marketing reinvention begins

July 1997
Marcus marketing system implementation begins

October 1997
Legislative reform of commemorative coin program begins

Project 5 Coin Programs

August 1998
One-dollar coin design and selection process begins

December 1998
- Legislation authorizes 50-state quarter program and new one-dollar coin
- First state quarter is minted

into a wall called information systems," he says. The mainframe was unable to slice the data in any meaningful fashion, and only a few IS staffers knew how to access the information. Marketing staff had to ask the IS group to query the mainframe with questions, and getting answers could take weeks or months. "Our customer list was one of the crown jewels of the Mint, yet we couldn't use it," says Diehl.

Recasting the Mint

Diehl, Pickens and the marketing staff started looking for a database marketing specialist to advise them. The company name that repeatedly came up was Dialogos Inc. in Boston, run by Vernon Tirey. Tirey ended up advising them on much more than database marketing. The Mint started out, says Diehl, wanting to ask simple questions of its database without waiting two months for a response. It ended up with a complete reorganization of its business units.

Tirey says that a new computer system would not have been enough to cure the Mint's marketing woes. "We could improve their marketing programs and give them ad hoc query technology, but they'd never fulfill their potential, because the Mint was not organized properly," he says.

Tirey's words acted as a catalyst for Diehl, who grew determined to make the very structure of the Mint reflect the needs of its customers. This is old news to many corporations, but Diehl says, "It was largely unheard of in government, even for a small agency [2,200 employees] like ours."

Working with Tirey in late 1997, Diehl and his executive team---Deputy Director Mitchell, the heads of the four production facilities, the chief counsel, the head of security and the CFO—dug into some of the Mint's underlying problems.

For one thing, the Mint's functional departments had a bad habit of not collaborating across departments, leading to tremendous inefficiencies, says Diehl. If the Mint had a new collectible coin in the works, for example, the planning between marketing and manufacturing was chaotic at best. Marketing produced what it thought was the right amount of packaging, and manufacturing produced what it thought was the right amount of coins. If they had more coins than packaging, the excess was melted down, or if the reverse, packaging was thrown away, both wasteful and expensive.

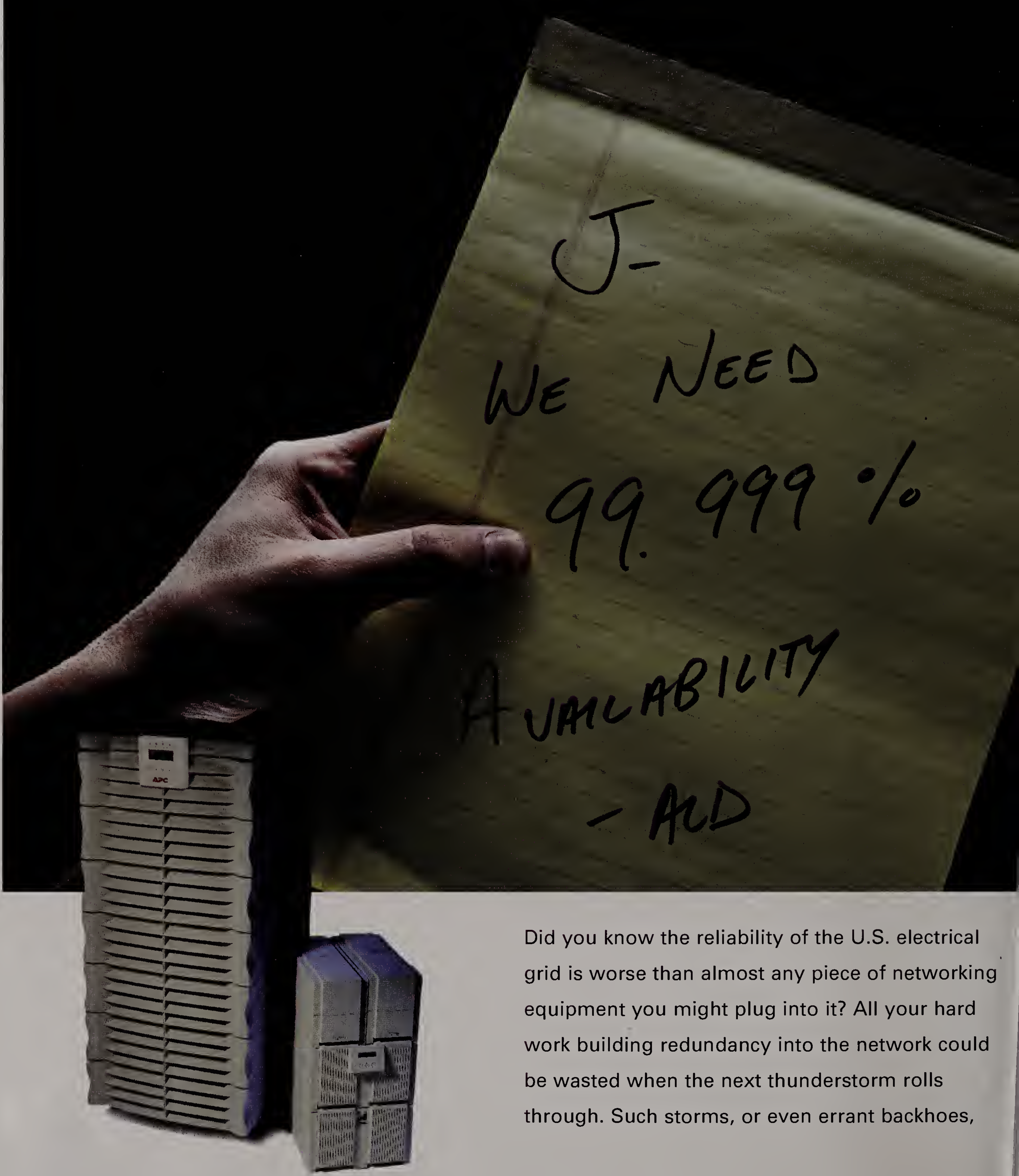
"It took the bureaucratic equivalent of an independent counsel to find out what was wrong," says Diehl. "Everybody was so afraid of taking the blame, it was hard to diagnose the cause of failure."

Diehl knew he wanted to radically reorganize the Mint, and that numismatics, the "sexiest" division, still needed major renovation. His management team agreed with him in principle. But moving from principle to reality is never simple. As Tirey points out, Diehl had a problem: He couldn't just issue orders to his executive team, he wanted them to figure it out for themselves. "If the team didn't learn how to work together, the organization was never going to succeed," says Tirey.

Diehl decided to try incarceration as a teamwork tool. "We locked the leadership team in a room and said, 'Here's our strategic plan. We now need to reorganize the assets of our organization to fit,'" recalls Diehl. He stayed away from the room "because it needed to be their plan. Otherwise, they would've kept deferring to me."

Tirey, who facilitated the incarceration, built a computer

Availability?



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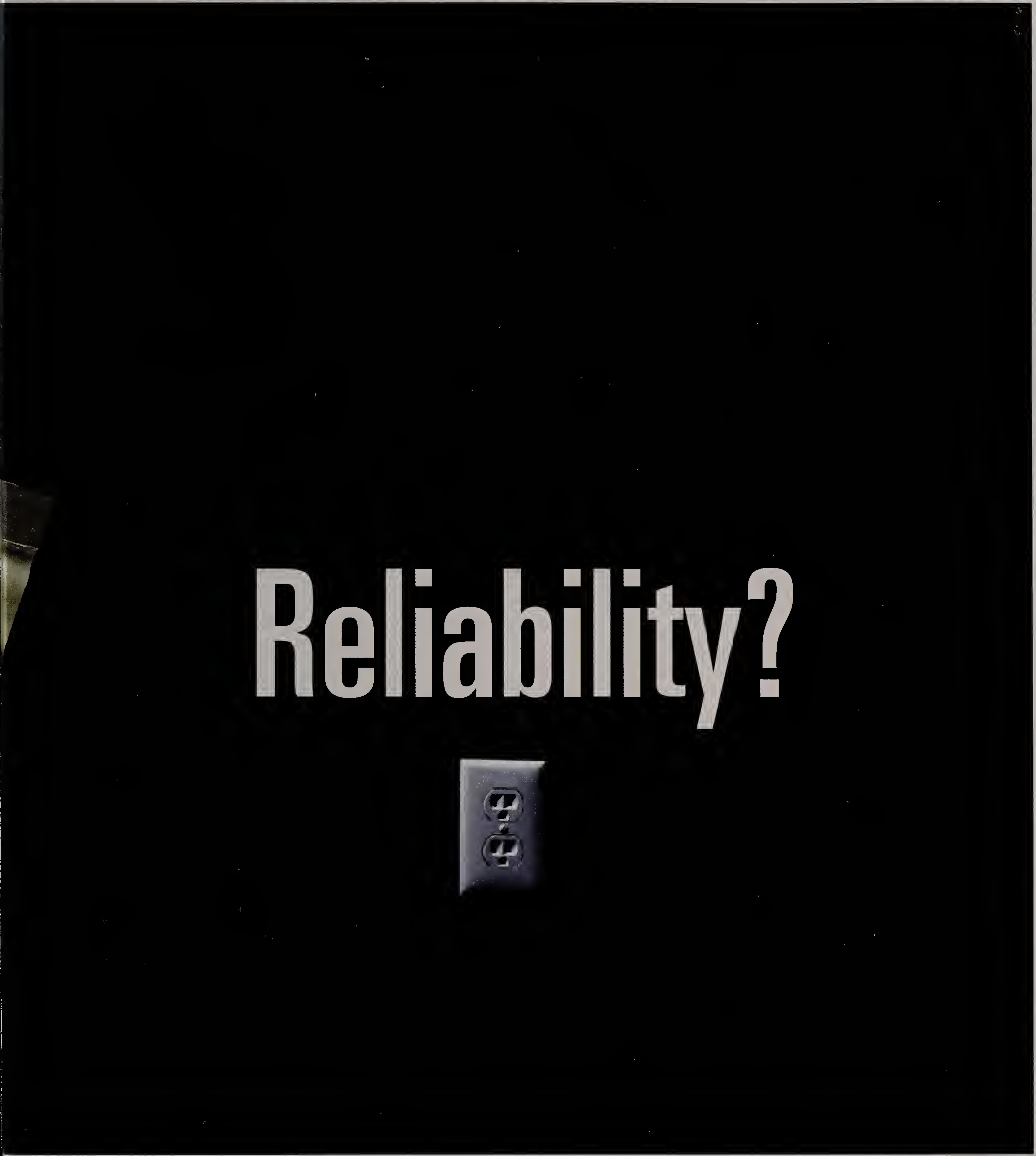

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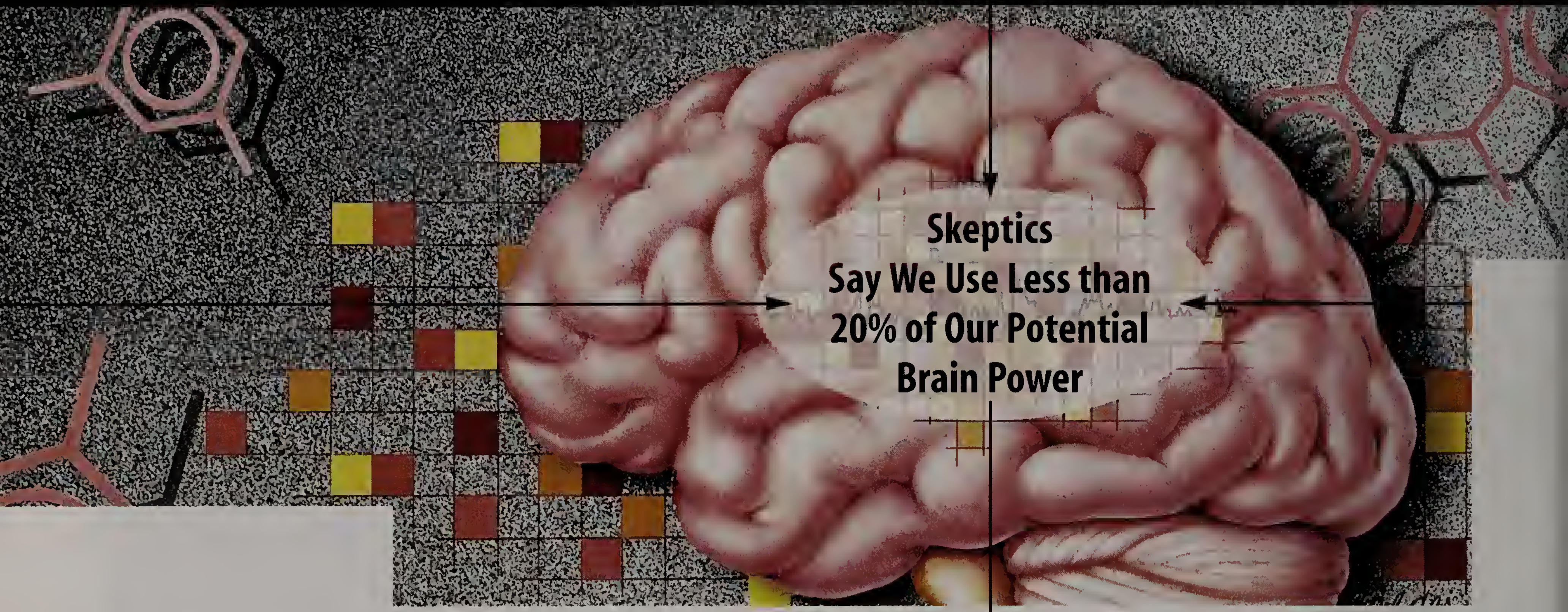

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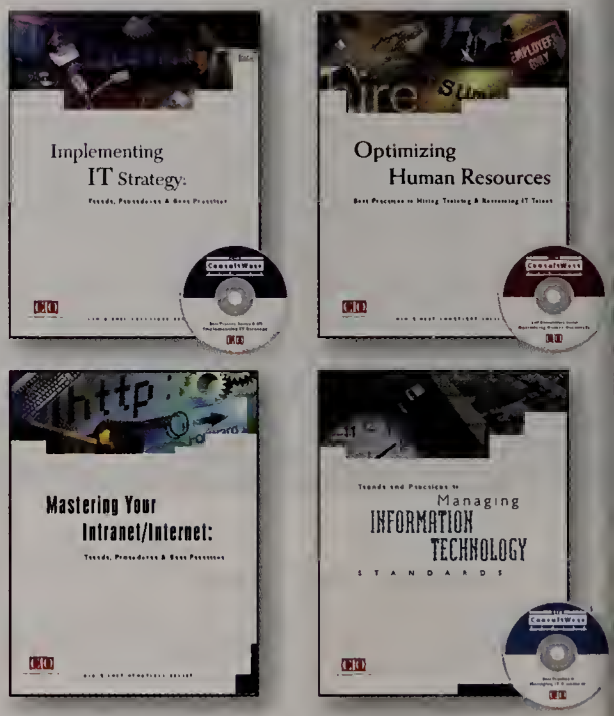

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model that simulated the business. One by one, team members fed their business proposals into the model, and one by one the proposals crashed. "It was interesting," says Tirey. "Each had a piece of the puzzle, but none had the whole thing." As they realized this, the team members were able to put together a plan that reflected the bigger picture.

"Planning was a very tricky political process, and it's crucial to the success of the product." —PHILIP DIEHL, DIRECTOR, U.S. MINT

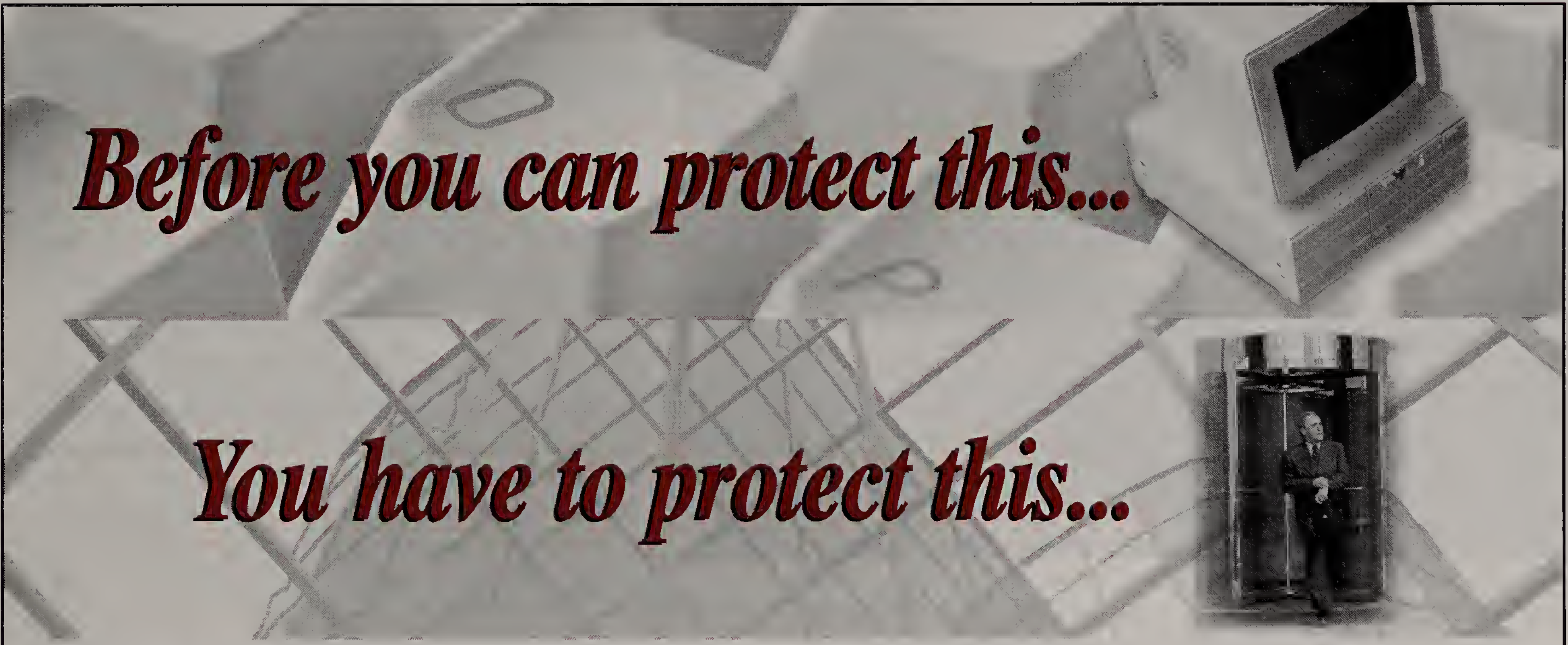
Diehl's team decided to divide the Mint into three strategic business units (SBUs) that reflected its different customers. (Before, it wasn't really organized at all. It was just one inchoate mass.) The first SBU was circulation, which made coins for its one and only customer, the Federal Reserve Bank. Then there was the collectible coins division. Finally, there was The Office of Protection, responsible for safeguarding all the money and bullion of the Mint, as well as federal gold reserves at Fort Knox, Ky. Each SBU now has its own sales, marketing, procurement and accounting departments, and the two coin SBUs split the manufacturing facilities. The reorganization allows Mint workers to build a deeper expertise in one particular line of business rather than having to know a little about many disparate projects. For example, the numismatics marketers need channel and brand management skills, something not as necessary to circulation employees.

"What this new org chart says is, 'You are in charge of this product,'" says Diehl. "It increases accountability all way down the chain of command."

Sparing No Change

Diehl and his managers were ready to start implementing the changes by 1998, but the plan was more than just a redrawn org chart. Among other things, it required some people to reapply for their jobs and others to be hired for new positions, like new product development and channel management. It also completely overhauled the lines of reporting. That would be enough change in a year for many companies, but it was just a quarter of what the Mint braved in 1998.

PHOTO BY VITO ALUIA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Giant project number two was a 10-year, $40 million software installation, implemented in fast-forward speed. Diehl, along with several executives including CIO Jackie Fletcher, had—simultaneously with the reorganization discussions—carried forward a plan to fix with the Mint's information systems to allow Mint employees to get at the data imprisoned in legacy mainframe systems and to ensure Y2K compliance. In late 1997 they decided that nothing short of a full-blown ERP installation would do the job. (ERP, or enterprise resource planning, is a monolithic type of software that is used by all departments, such as HR, finance and operations. Since the software is integrated, the departments can more easily share information. The Mint chose PeopleSoft Inc.'s ERP package.) But since the government-mandated deadline for Y2K compliance was October 1998, and the ERP project was, in large part, the Mint's compliance plan, the ERP group had 12 months to install its software. If it succeeded, it would hold a world speed record for ERP installation. The project, dubbed Coins (for consolidated information systems), would eventually eat up the time of nearly one-third of the staff at the Mint's D.C. headquarters.

"It was a crazy process. I look back, and I'm still amazed by it."

—JOHN MITCHELL, DEPUTY DIRECTOR, U.S. MINT

Diehl admits that it was a stretch to launch those two projects simultaneously. But on top of that, the Mint also shot off its two biggest product launches in decades. One was the 50-state quarter program, which will mint a coin in honor of each state. The Mint will release five quarters a year that feature reverses (tails) designed by each state.

The Mint was also in the heavy planning stages for the new dollar coin, slated to appear in January 2000. "The planning was a very tricky political process, and it's crucial to the success of the product," says Diehl, particularly since the coin replaces the Susan B. Anthony dollar, much maligned for its design.

"We laid those four projects on top of the everyday running of business," says Diehl. "By the end of the year, people had their tongues hanging out."

Both product launches demanded that Diehl spend even more of his time on Capitol Hill, building consensus and making deals. Mitchell stepped forward. "Wisely or not, I volunteered to head up Coins," says Mitchell, who, having implemented systems before, had an inkling of what lay before him. "It was a crazy process," he says. "I look back, and I'm still amazed by it."

The ERP group, which comprised both technical and functional employees, moved to separate quarters down the street. Backed by Diehl, Mitchell chose the best and brightest from the Mint for Coins. They reported to the Coins project managers for the duration of the implementation. According to Michael Zuckerman, who was project leader for the functional group working on Coins, part of the complexity of the undertaking was that it really was four projects: ERP software modules for finance, manufacturing and distribution, with hooks to the new marketing system. Zuckerman, working with Fletcher, who led the technical part of Coins, set up "bull pens," or open spaces, for each of the module groups to gather in as a team and brainstorm ideas and solutions. Replacing cube space with a large communal space helped get the work done, says Zuckerman. Since Coins project staff were working 70- to 80-hour weeks, they needed all the help they could get. Fletcher says that beyond giving her people the tools to do their jobs, and helping them to understand their role in the implementation, she functioned as a caterer. "I'd throw parties whenever stress levels got too high or when we'd met a deadline and were proud," she remembers. "Pizza, ribs, whatever they wanted. I just bought it."

Coins went live Oct. 1, 1998, hitting the original federal Y2K deadline. The three-business unit reorganization is finished but for the mopping up, and the first five state quarters are in production. Zuckerman, along with many of his cohorts, finally had time for a vacation. He took two weeks around the holidays, but, he admits with a smile, "It took a whole week just to feel like a person again."

It's been a wild five years at the Mint, and executives there are obviously proud of the job their employees have done, pointing out repeatedly that the credit for their minty fresh new organization belongs to everybody. Diehl says he wishes he could take the credit for being a visionary, but that's just not the way it was. "In retrospect, it sounds like we had a grand scheme," he says. "But nothing could be further from the truth. We just tackled one task, and it led to others. It was like pulling a thread on a brand-new tie; before long, you have it unraveled."

Senior Editor Carol Hildebrand can be reached via e-mail at cjh@cio.com.

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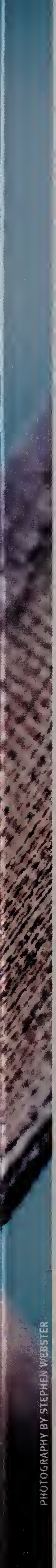

PHOTOGRAPHY BY STEPHEN WEBSTER

CUBE Stakes

BY DAINTRY DUFFY

While CFOs cheer potential ROI from alternative office schemes, displaced cube dwellers may be less sanguine. Here's how to reconcile them to the new workplace order.

THERE'S NO PLACE LIKE HOME...even when you're at work. For decades, employees have latched on to their small patch of office space to create a miniature retreat: three or four walls that they are prepared to look at for 10 hours a day. They decorate them with children's colorful finger paintings, touching family photos, humorous cartoon clippings and postcards from exotic locations, where—in all honesty—they'd probably rather be. Knowing how employees cherish their space, what do you think would happen if management abruptly announced it was being taken away?

It's a question worth asking. As companies increasingly shuck cubes and offices in favor of alternative work arrangements, such as hoteling (whereby multiple workers serially share a single space), team-oriented offices and telecommuting, loss of a dedicated workspace looms larger in the corporate landscape. And although such trends are not new, they are inching their way along a continuum that leads to a wholesale restructuring of the work environment. The Alternative Workplace Study, produced in 1998 by the International Facility Management Association and LaSalle Partners Inc., found that the number of telecommuters will more than double in the next three years and the number of people working out of virtual offices is expected to climb from 5 percent to 11 percent. While the numbers aren't large compared with mainstream office

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- How cultural issues can torpedo such arrangements
- Coping mechanisms to help employees accept a new office

arrangements, they are growing fast.

Studies like this point out the fact that corporate workers are going mobile; eventually, perhaps, most will have no cube to call home, opting instead for alternatives such as telework centers, home offices or airplane seats. But whatever the final workplace picture may be, it's clear that as companies redesign office space, they are gradually weaning employees from the expectation of permanent digs. Workers may mourn the loss of their rectangle of permanent space, but most can see the writing on their fabric-covered walls. And as these arrangements flow toward mainstream acceptance, wise companies will adopt mechanisms to help their employees cope with the change. Accepting a new reality and embracing it are two different things, after all.

What's the Attraction?

Since money lies at the root of so many business changes, it's not surprising to find that many companies have dumped their traditional offices to save on real estate costs. Timothy Kane, president and CEO of Kinetic Workplace Consulting Group, a Pittsburgh-based consultancy specializing in workplace integration, points out that reducing square footage can add up to significant savings. "Companies such as AT&T and Cisco are seeing that these strategies can [trim] by 20 to 30 percent the footage that they have in their portfolio," Kane says. He adds that at a company like AT&T, which may occupy up to 10 million square feet of real estate costing $30 to $35 per square foot, a 20 percent to 30 percent savings adds up to very big numbers.

Companies also use alternative space strategies to support new workstyles, such as team-based workgroups. For example, Sapient Corp., an e-business management consulting firm in Cambridge, Mass., gives each project team of engineers a room where they work closely for periods as short as 10 to 12 weeks or as long as 18 months. That room belongs to the group members for the duration of the project, and they can personalize it however they want.

Whatever the reasons for moving to an alternative workspace strategy, doing so will involve growing pains. The trouble is, executives often leap into these projects with no clear strategy for dealing with employee concerns and with little idea of the effect that proposed changes will have on workplace dynamics. Unless they create palliative measures to ease employee resistance and mitigate other likely effects, companies can pay a high price in employee turnover and lost productivity. Moreover, they risk wasting the sizable IT and facility investments that are often required to support alternative workplace strategies.

For example, when TBWA/Chiat/Day advertising agency pioneered alternative office design in the early 1990s, it discovered riding the bleeding edge can have its downside. Chiat/Day, which was then based in Venice, Calif., designed an office that was entirely "free address," where employees chose a desk each day on a first-come, first-served basis. But even though the company offered guidelines on behavior modification and put the latest in technology in each work area, "The space didn't work," says Kane. The office was great for collaborative design work and creative brainstorming, but there weren't enough private areas where workers could do more focused work. Employee feedback made it clear that the space didn't meet their needs, Kane says.

Alternative office designs fail for the fundamental reason that companies are making an investment in the facilities planning and the IT infrastructure to support a new strategy—but not in the employees who will be most affected by it. Many of the problems that are naturally raised by changing an employee's work environment can be overcome by paying serious attention, rather than lip service, to the employee's needs.

Fitting Spaces to Jobs

Not every workspace strategy fits every job description. Hoteling, for example, works only for employees who are space nomads to begin with, such as sales reps and consultants. Companies deriving the greatest benefit from alternative workplace strategies employ a combination of methods that reflect the workstyles of individual groups. Robert Deering, managing principal at the Dallas office of Interior Architects Inc., stresses the importance of understanding how employees work. "Find out how workers utilize their office space, how they interact and how they use technology," he suggests. "Look at the work processes before conceiving a [generalized] way of housing people."

There are times, however, when business executives purposely implement a new workplace design to change rather than complement how people work. At such times, managers should make sure they first train employees in the behaviors and workstyles required in the changed environment.

> **"Human beings have a sense of place, and hoteling violates that."**
>
> —TOM DAVENPORT, ANDERSEN CONSULTING

For example, Sapient's annual growth rate of 60 percent to 75 percent leaves the company with a constant influx of new employees who may never have worked in the kind of team-based environment the company espouses. To keep its team structure solid, Sapient puts every new employee through a week of intensive orientation in the underlying principles and modes of behavior the business relies on. The company's culture is also supported by a team of 10 employees whose job is to reinforce and monitor Sapient's core values. Sapient founders Jerry Greenberg and Stuart Moore, who are co-chairmen and co-chief executives, created the corporate culture group early on when they realized that cultural issues would be integral to the success of their fledgling company.

Coping Mechanisms

Offering employees incentives that ease the pain of change can help the transition to new office space. The renovation of Xerox Corp.'s Square Building in Rochester, N.Y., will eliminate 30 of the 150 private offices and shrink the rest. Meanwhile, the number of cubicle workspaces will increase from around 1,200 to 1,500, allowing the company to move employees from a leased facility

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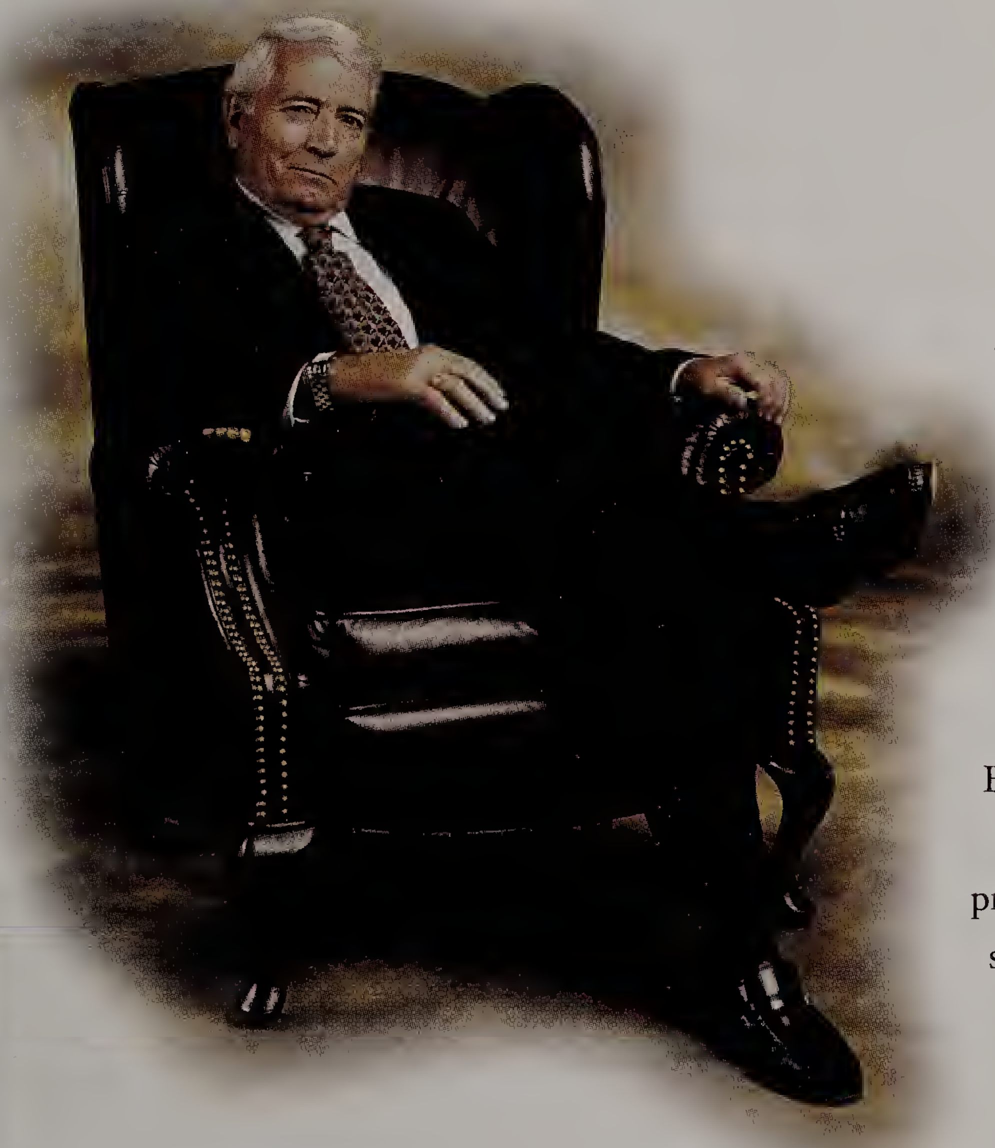

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into the Xerox building.

Most employees have lost working space, but they are also getting something. The old office setup was dark, and light from the windows seldom reached the office interior, which was largely inhabited by administrative staff. "Every cube now has outside lighting coming in," says Charlene Stephens, an editorial assistant who moved from an area that had little natural light. "Some people who were in an office are now in a cube, but they're by a window, so it doesn't feel like it."

John Lynch, director of global outsourcing at Xerox, moved to a new office that's about half the size of his old one. Though he has less space, Lynch says the move was positive. "All my people are now on the same floor, so I have much better access to them," he says. Xerox has kept a close eye on employee reactions to the new space through surveys, and 84 percent of the employees currently rate their feelings as "satisfied" or "very satisfied."

The move from a dedicated office to a hoteling strategy is perhaps the most drastic change for an employee and requires the most creativity by way of coping mechanisms. The more mobile a worker is, the more his or her morale is likely to be depressed by an alternative workspace. In fact, the Alternative Workplace Study found that 27 percent of companies where employees no longer had dedicated office space reported a decrease in morale.

Tom Davenport, professor of management information systems at Boston University School of Management and director of the Andersen Consulting Institute for Strategic Change in Wellesley, Mass. (and regular columnist for *CIO*), works in an office that uses hoteling and dislikes it. He calls it a false economy. While Andersen saves money, Davenport thinks it does so at a certain human cost. "Human beings have a sense of place," he says, "and hoteling violates that." He also complains that employees who hotel tend to feel disconnected from their coworkers and neighboring workers because the nearby cast of characters changes with each office visit.

For strategies like hoteling to work, experts say companies must provide methods that help their mobile employees cope with feelings of isolation and rootlessness. Franklin Becker, director of

Office Speak

A glossary of space-age terms

WHEN CUBICLES WERE CREATED IN 1968 by Robert Propst, a designer at Herman Miller Inc. in Zeeland, Mich., they seemed the perfect privacy solution for the then-standard open "bullpen" office areas. But as cubicles gained notoriety for their bland and boxy nature, critics began to lambaste them as demoralizing to workers and inefficient in their use of space. Trends toward team-based working environments and open office areas have spurred some companies to explore alternatives. Read on for a glossary of new-age workspace lingo.

- **Free range:** Workspaces that are available to anyone in the company on a first-come, first-served basis—no reservations required.
- **Group address:** Unassigned team spaces designed for use by project teams and other groups.
- **Home office:** The most common form of telecommuting, in which employees work at home one or more days per week.
- **Hot desking:** Open office spaces with easily movable furniture and partitions that support on-the-spot group meetings or quickly assembled individual work areas.
- **Hoteling:** A system whereby unassigned workspaces are reserved for certain blocks of time—usually facilitated by a "concierge." This strategy is effective only when used by employees who are out of the office more than 50 percent of the time (for example, consultants and sales reps).
- **Huddle spaces:** Areas such as cybercafes, which are designed for informal meetings, chance encounters and work breaks to foster idea exchange and communication.
- **Learning spaces:** Rooms that provide a traditional classroom environment or a space for interactive learning experiences.
- **Permanent assigned:** The traditional situation of one workspace being assigned solely to a single employee or group to support individual or collaborative work.
- **Shared assigned:** Two or more employees are assigned to the same workspace and figure out a schedule to use the area at different times.
- **Telecenters:** Business centers where many companies rent space for their employees. Centers are equipped with receptionists, clerical help, e-mail and voice mail.
- **Tenant space:** Group spaces that are rented for projects where employees will be working together for a short but intense period.
- **Videoconferencing rooms:** A room specially designed to support the lighting, acoustic and other special technological requirements of group communication.
- **Virtual office:** Employees who are constantly on the move carry their offices with them. Laptops and various telecommunications services allow mobile workers to connect to the central office from virtually any location.

–D. Duffy

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Cornell University's International Workplace Studies Program, points out that there can be a great deal of social isolation for individuals who spend significant time away from the office. "Companies have to put in other support structures, like requiring that everyone comes in on a Friday, just to be in the office and interact with people," he says.

At Deloitte Consulting LLC in Pittsburgh, for example, the company created areas for social interaction and casual meeting places as part of its switch to hoteling. One popular perk is a cybercafe, where harried consultants can munch on free snacks while they plug in their laptops in a relaxed environment. The cafe offers six kinds of cappuccino, Starbucks coffee, fruit, bagels and M&Ms (plain and peanut). Deloitte also added touchdown areas—scattered groupings of tables and comfortable chairs with modem ports that people use for impromptu meetings or just to catch up. The company even stopped delivering mail to employees' desks, a move that fosters chance encounters and socializing. Employees who now have to walk to the mailroom to get their mail often get a chance to meet and catch up with coworkers.

Private Space

The trend in office design is clearly toward more open areas and less personal ownership of space, which creates some significant privacy issues for employees. For example, when employees move from private offices to a team area or an open cubicle setup, they need to learn new working behaviors—like keeping the noise level down. Companies don't always take these factors into consideration when redesigning an office space. The key to team spaces is to keep them small, or companies risk a return to the open bullpen environments of the '40s and '50s. "Organizations that have taken down walls and thrown people together are lousy," says Mike Brill, president of the Buffalo Organization for Social and Technological Innovation Associates (BOSTI) based in Buffalo, N.Y. "Teams don't work in the open. They work in an enclosed team space where they are free from outside noise." To do otherwise is "a total misreading of what group work is," says Brill.

Giving employees privacy need not be complicated. At Sapient, employees can use telephones that have been placed outside the team rooms for times when they need to make a private call.

Companies should also encourage employees to create their own standards of behavior when sharing office space. Team members at Sapient often institute rules that allow people to have time when they can focus without being asked questions. A rule might stipulate that if an engineer is wearing a baseball cap or has headphones on, he or she cannot be disturbed.

For years the private office has been more than a place to work; it has been a status symbol. Once an employee reached a certain rung on the corporate ladder, one of the trappings of that position was a private office with the most coveted of features: a door. In the future, not only will employees be stripped of their personal offices, it is quite likely that they won't have an office to go to at all. And many analysts predict that in the not-so-distant future, most white-collar workers will be entirely mobile. Instead of spending time in a corporate office, they will work alongside employees from other companies in telecenters that are equipped with faxes, copiers, computers and administrative help.

As companies progress along this continuum, different iterations of the increasingly mobile workspace are bound to develop. Organizations that want to navigate the new workspace successfully will have to worry about more than keeping up with the latest trends in office design. It is their responsibility to ensure that employees are prepared to face those trends as well.

Staff Writer Daintry Duffy can be reached at dduffy@cio.com.

Hoop Dreams

One company brings basketball into the office—and shoots and scores

INTEGRATING ATHLETIC FACILITIES INTO THE OFFICE SPACE is a growing trend among companies that are trying to lure today's free-agent employees, but few have taken the unique spin on this phenomenon chosen by Cignal Global Communications Inc., an international telecom carrier in Cambridge, Mass.

When Cignal founders Andrew Perlman, 23, and Mark Land, 24, first looked at their office space, they found an 18-foot by 40-foot room with a lofty 22-foot ceiling filled with natural light from high windows at the top. The room would look strange as a private office, and it didn't seem functional as an open workspace either. When their real estate agent jokingly suggested turning it into a basketball court, a mental light bulb flicked on.

Realizing that the building management might not approve of a basketball court in the middle of an office space, Perlman and Land had the contractors soundproof the floors and insulate the walls to cut down on distracting game rumble. They also put in safety glass windows for spectators to watch impromptu pickup games. At the advice of a lawyer, they covered the windows with safety netting so that a bad bounce wouldn't send a ball bouncing onto the busy Cambridge streets.

The court has become much more than a place for stressed employees to blow off steam. The company also convenes client strategy sessions between the hoops. Perlman points out that when the group is stuck on a particular problem, having the basketball hoop can give an added boost to the group's creativity—though not without a price. Stray shots can play havoc with laptop computers and send soda cans careening across the table. But Perlman shrugs it off as part of the fun. "When the boss throws a few shots that don't hit...what are you going to do?" he asks. *–D. Duffy*

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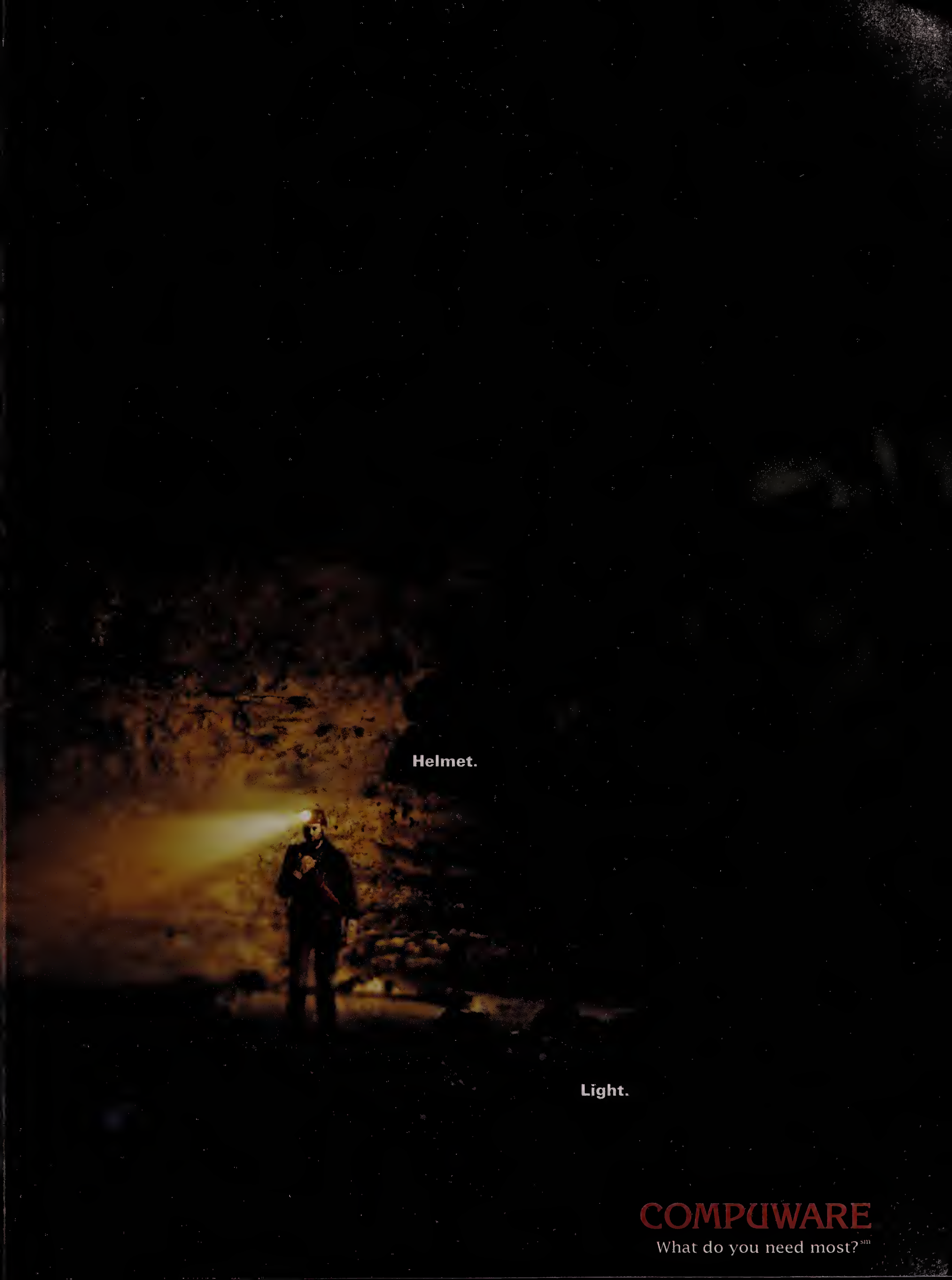

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Grow Your Own Consultants

Using in-house consultants helps retain all the intellectual capital a project generates. But beware: Many of these efforts fail.

BY RICK SWANBORG AND BOB RECK

TO HEAR MADDOG, AN OLD COLLEGE BUDDY, tell it, a weekend of canoeing on Maine's Moosehead Lake sounds seductively simple: paddle a little, drink a beer, get a tan. But what appears to be easy can turn out to be complex and even dangerous. It's not until you find yourself trudging a mile with a canoe on your head through 12 inches of snake-infested mud and a cloud of black flies that the truth emerges.

Establishing an internal consulting group is much like the Maddog experience—an enticing but potentially perilous trek. The lure of building an internal consultancy to support the needs of a large corporation are many. But before you pick up your paddle, be forewarned that it's an effort fraught with risk: About half of all internal consulting groups don't succeed.

ILLUSTRATION BY LISA MANNING

Internal Consulting's Promise—and Perils

If our friend Maddog were trying to talk you into launching an internal consulting group, he'd have plenty of convincing arguments on his side. Who wouldn't want a permanent cadre of bright and skilled staff available to focus their brainpower on the business's most pressing problems? And how many CFOs would object to slashing the budget for external consultants, given that maintaining internal talent usually costs far less?

Internal consultants would not only know the business better but possess greater loyalty to and understanding of the company's culture, systems, processes, structure, products and customers. They'd have an established network of relationships and know how to get things done quickly. And at the end of their assignment the intellectual capital accumulated from the project wouldn't walk away with the hired guns—nor would corporate secrets and proprietary knowledge wind up in the hands of competitors who later hire the same consultants. With some training and on-the-job experience, internal consultants could broaden their skills and contribute to many departments. Once they establish a track record, they may even be able to lead the company through many of the vital changes it needs to make in order to grow and compete.

One of the chief inspirations for establishing an internal consulting group is the caliber of companies that have standing internal consulting groups, among them AT&T Corp., Carrier Corp., Dow Corning Corp., Fidelity Investments, General Electric Co., The Gillette Co., Johnson & Johnson, Sun Life Assurance Co. of Canada and Xerox Corp. The groups range in size from 1 or 2 people to a staff of more than 100. Several companies have multiple internal groups. Groups may focus on a narrow range of skills, such as information systems development or manufacturing, or contain generalists able to jump in wherever they're needed—or a mix of both. The range of assignments is usually broad and may include formulating the most sensitive of strategies, supporting deal making, focusing on information systems or contributing to business process reengineering and change initiatives.

Many of these in-house consulting groups have achieved results that brand-name consultants would be proud to claim. In its first year of operation, for example, a group of consultants at a well-known manufacturing company amassed a remarkable record: It reduced inventories by $1.25 million, improved one department's productivity by 60 percent, reduced cycle times in one operation by 50 percent, paved the way for extensive overhaul of the company's core information systems and improved service to the company's distributors and retail customers through faster response to problems.

So why do internal consulting groups fail? One reason is

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that the managers who launch an internal group underestimate the challenges of consulting (see "Danger Zone," below). Merely changing a group's name and declaring a new mission does not produce a capable and functioning consulting group. In order to thrive, a group must zero in on what prospective customers want from consultants, develop professional competencies to meet those needs and market its capabilities to internal business clients.

Focus on Customers

Understanding why customers buy consulting services may help you clarify which services your group could successfully provide. Often, clients can't find the resources within their own department to accomplish a critical project within a time frame—and hire consultants to do the job quickly and cost-effectively. Others want people with talent for creative analysis who can offer a second opinion on a business situation or bring a fresh perspective to solve a problem. Some are after skilled workers to provide professional support systems integration, project management or auditing. Still others hire consultants as change agents, individuals who can act as unbiased change managers.

Find out what services your prospective customers really want and need. Might they go to an outside firm for that? Why? Could you offer a better alternative? Interviews with key prospects and customer focus groups will help determine the demand for your group's services. If your customers want canoeists to paddle across a placid lake, and you are grooming them to handle Class 4 rapids, then you need to realign your objectives with business requirements.

Consulting Competencies

Knowing what your clients want, however, won't guarantee smooth paddling for your internal consulting practice if you don't staff it with the right people. In fact, many consulting groups fail because they appoint staff from business functional groups assuming they will be good consultants. Good functional skills

DANGER ZONE

Eight stumbling blocks to in-house consulting success

1 **FUZZY FOCUS** The lack of a clear strategy for a new consulting group will frustrate your staff and confuse your customers. Be sure you've analyzed and answered questions such as, What do your customers want? How should you bill? Will you accept long-term projects? Will you compete against external consulting enterprises? Will you conduct research?

2 **ABSENCE OF SENIOR MANAGEMENT SUPPORT** Without senior management backing, internal groups struggle for recognition, work and projects that match their capabilities. This frustration can lead to talent erosion as skilled staff leave the group for other company jobs.

3 **NEGLECTING THE MARKETING EFFORT** Many look upon internal marketing as an unnecessary expense, but it is critical for establishing your presence and selling your organization. External consulting groups spend 25 percent to 50 percent of total revenue on marketing and sales.

4 **MISMATCHED SKILLS** Do you have the right people for the job? Most good consultants are extremely sociable, can exert influence even without authority and are comfortable with change. Not everyone in your organization will possess these traits—nor will they all want to be consultants.

5 **MEAGER INCENTIVES** The entrepreneurial, problem-focused, high-achieving people attracted to consulting are often driven by financial incentives. In exchange for high salaries, most are willing to put up with endless travel, long hours and tough client situations. However, matching these rewards and demands in an internal consultancy can conflict with human resource policies. With partner salaries in external consultancies above $300,000 and annual salary increases for top performers of 25 percent or more, the cost of retaining talented people internally may be prohibitive.

6 **INSUFFICIENT INVESTMENT** Companies with internal consultants must invest in those assets to enable them to add value. A major manufacturer expects its internal consultants to spend about 15 percent of their time on enrichment learning activities. This ensures that intellectual capital is fresh and relevant. If internal consulting groups don't invest in this ongoing development, they can't compete with outside consultants and won't add the kind of value their company needs.

7 **BIAS FAVORING OUTSIDERS** There's a common saying that a consultant's value exponentially increases with the distance between the home office and the client location. The reverse can hold true for internal consultants: If they're so talented, the logic goes, why aren't they working for a top consulting firm? Changing this perception is very difficult.

8 **LACK OF CONTROL** The ability to walk away from work helps focus experiences and build credibility. If you can't price your group's services based on demand or reject inappropriate work (for example, the CEO asking IS consultants to fix a PC), then your group's reputation and morale will plummet.

–R. Swanborg and B. Reck

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do not guarantee good consulting skills. Effective consultants require functional skills *and* softer skills not usually nurtured in functional staff. These include facilitation, client and expectation management, conflict resolution, creativity, leadership, change management and exceptional communication skills.

Consulting organizations that are successful at building and maintaining professional competencies supplement their formal training programs with three skill development approaches: mentoring, continuous learning and assignment rotation.

- **MENTORING** Developing new consultants quickly requires active leadership and coaching by veterans. On-the-job coaching usually beats formal education. Some companies may assign a mix of internal and external consultants to the same project, capitalizing on the expertise of outside consultants by having them serve as mentors.
- **CONTINUOUS LEARNING** Good consultants never quit learning. In fact, the best consultants treat consulting as a learning process. The kind of people you want to staff your internal consultancy won't follow methodologies that require mindless and rote execution for long; they'll leave or, if allowed, change the approach. Ask potential internal consulting hires what they read and how often. Look for people who enjoy diverse topics and have an innate curiosity.
- **ASSIGNMENT ROTATION** Consulting staff should have an opportunity to work in different business areas, different consulting practice areas and with different thought leaders to round out their experience. A planned rotation program will keep your organization fresh and groom staff members for high-impact assignments throughout the company.

Sell Yourself

To many aspiring internal consulting organizations, marketing is a dirty word. That belief often leads to their failure. Your customers' perception of your organization—and your credibility—will be influenced by how well you market your organization.

For most internal consulting organizations, awareness building is the first step. The act of interviewing potential customers as you develop your services not only helps you understand their needs, but it also puts your group on their radar screen. Other marketing vehicles include research reports on key problems facing company managers, newsletters with stories and testimonials to publicize the group's work, sponsorship of lectures by top academics and industry gurus, and multiclient programs that bring together company staff addressing similar problems. Personal relationships and contacts, of course, help a great deal in the marketing effort.

> **No plan is complete without a well-considered pricing strategy.**

Managing clients' expectations is a key component of any long-term marketing strategy. It may be tempting to slide into a project without clearly defining the project's objectives and scope or their involvement and role. Consulting groups should document these topics in writing in an official engagement letter to the client. This management of client expectations will help prevent sticker shock or dissatisfaction about the date a key milestone is reached.

As part of managing expectations, internal consultants need to be clear about what roles they will play in engagements. They may be coaches, advisers, mentors, experts, team members, participants, problem solvers or researchers. They may provide the methodology the team uses or help develop the approach as the group works. They may also act as cheerleaders and role models to others in the company. Clarifying the internal consultant's role and contribution for the client is also critical if expectations are to be well managed.

Finally, no marketing plan is complete without a well-considered pricing strategy. Recalling the old adage that free advice is worth what you pay for it, many internal consulting groups charge for their services to increase their perceived value and recover operating costs. Some cost-recovery schemes can get pretty complex, but group managers that charge usually aim to break even at the end of the year. One insurance company takes each consultant's salary, marks it up 50 percent to cover other company expenses and assumes that the person will bill 1,000 hours during the year. Thus a consultant who is paid $100,000 will have $50,000 assumed in expenses for a total to recover of $150,000. Dividing by the 1,000 hours, this person will charge $150 per hour for his or her work.

Some internal consulting groups charge nothing or deeply discount their rates to stimulate use of the group, particularly for areas of a corporation that are cash poor. Other groups work on fixed price, cost plus time and materials and value prices. (For the value prices model, consulting charges are based upon a portion of revenue generated, costs reduced or some other value metric associated with the results of the consulting work.) Some organizations vary the pricing method from job to job. Ultimately, the price of your talent contributes in some way to the perceived value of your services.

Launching and sustaining an effective and valued internal management group isn't easy. But by assessing your customers' needs, developing the competencies required to meet them and creating a sound marketing plan, you have a chance to paddle down a scenic river and even enjoy the trip.

Retired canoeist Rick Swanborg is president and founder of ICEX and can be reached at swanborg@icex.com. *Bob Reck still canoes and is president and founder of Kendall Consulting Group and professor at Babson College. He can be reached at* bobreck@aol.com.

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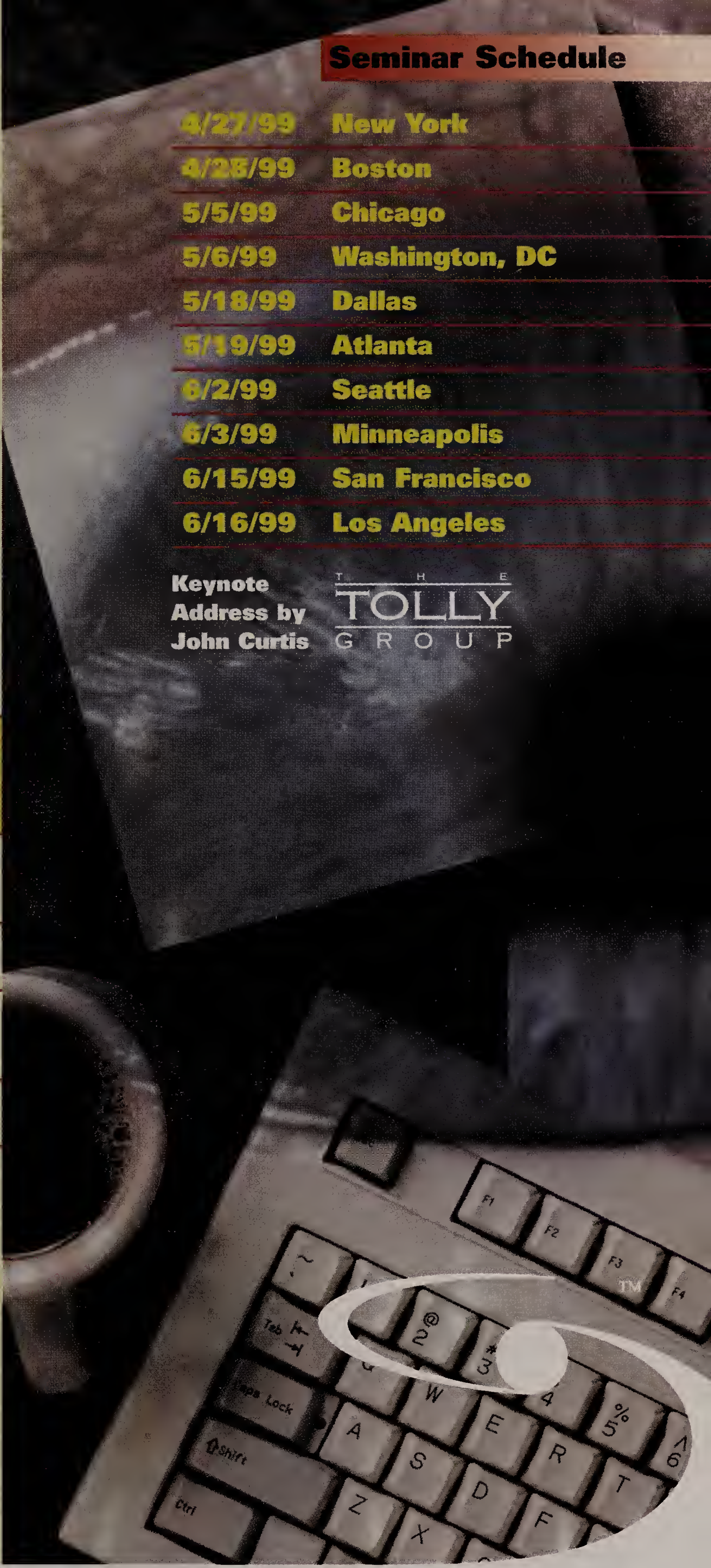

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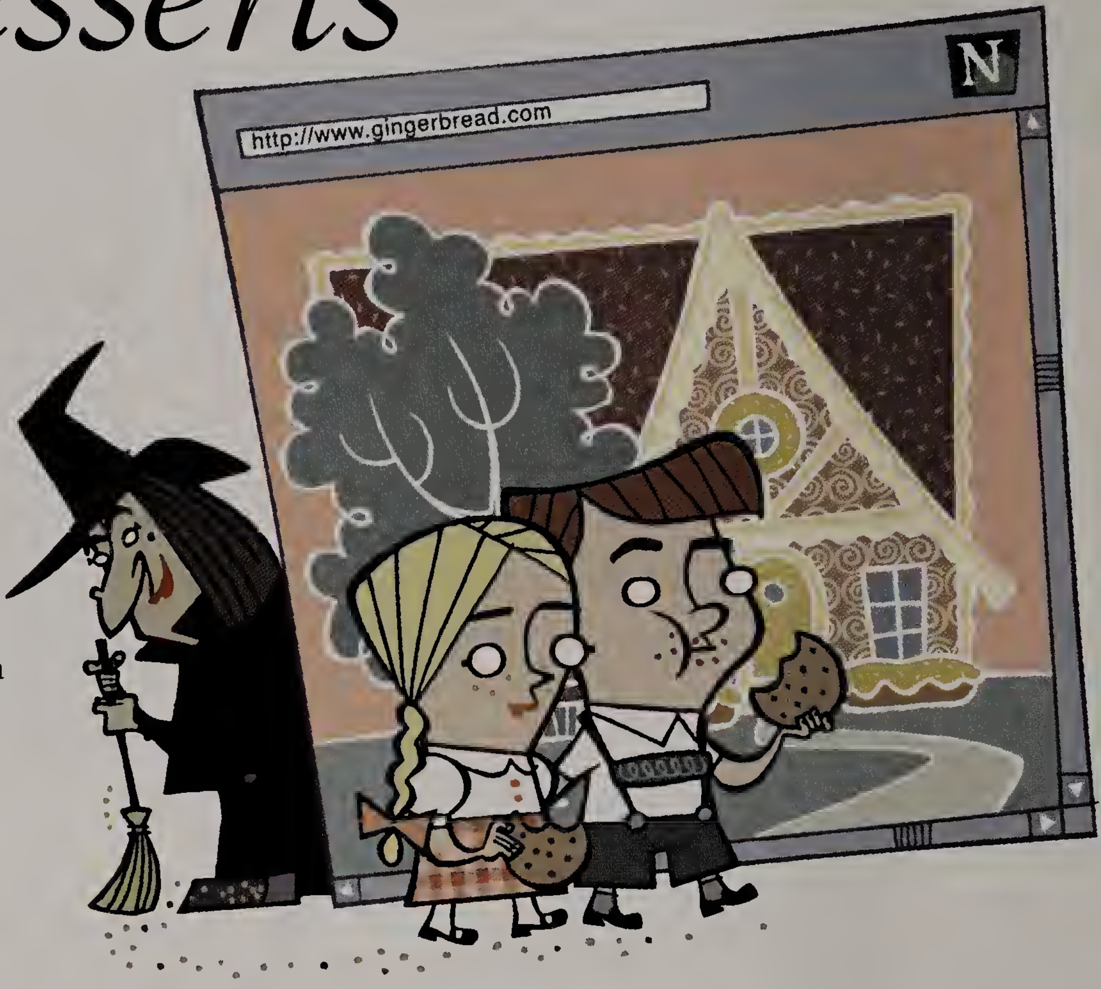

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If you have a Web browser on your computer, you also have a cookie file. As you view a Web page, HTML code—the language of the Web—directs the browser on your computer to write a cookie in your cookie file, recording whatever data the server specifies. Subsequently, the Web server can read your browser's cookie file. Each Web site creates a separate file and can read only its own cookies; in other words, the pet store can't read a cookie created by another site.

Web sites use cookies for several reasons. One is to gather targeted or personalized content, as in the example above. A cookie could also record the links or advertisements that you click on and add that information to a profile of your interests located in your cookie file. Cookies can remember your member ID and password so that you don't have to retype them every time you visit a membership site. Or a cookie can serve as a shopping cart for an electronic commerce Web site so that your browser remembers the items you wanted to purchase, even if you leave the site and return later. The point is to make the Web site more appealing to you, so you do come back again. If the pet store's personalized greeting gets you to buy cedar shavings, then a cookie just generated some additional revenue for the store.

Sounds good. Why are some folks up in arms over cookies?
The concern is essentially that the technology underlying cookies could be used to read other data off your hard drive. This presents a security risk. Some people also regard cookies as an invasion of privacy—they don't want their browser making a semipermanent record of every page they've visited.

It is now possible to set your browser to reject cookies or to alert you when a Web server attempts to write something to your cookie file. That way, when some Web site tries to give you a cookie, you can catch it with its hand in the jar.

–Derek Slater

Etymology

Where did the term "cookie" come from?
Nobody's sure. Netscape Communications Corp. created the first specifications for Web cookies, and the company's Web site says there is no compelling reason for the name. Others speculate that it is borrowed from a Unix software object called a magic cookie, which has similar tracking capabilities.

ILLUSTRATION BY TERRY COLON

Where does infrastructure end

and business begin?

This isn't a trick question. Ideally, the IT infrastructure—data, systems, applications—should support even the most daring business initiatives from start to finish. Realistically, though, the infrastructure can also derail them. And ultimately, you're responsible. We understand just how daunting this position can be. So we provide the most comprehensive portfolio of products and services to manage and improve your IT infrastructure—from database and systems management to data warehousing, decision support, application lifecycle and Year 2000—all with a lot less risk. Because when you can spend less time looking back over your shoulder, you stay more focused on what's coming up ahead... where your business really begins. Why not start right now, right here? **www.platinum.com/shine**

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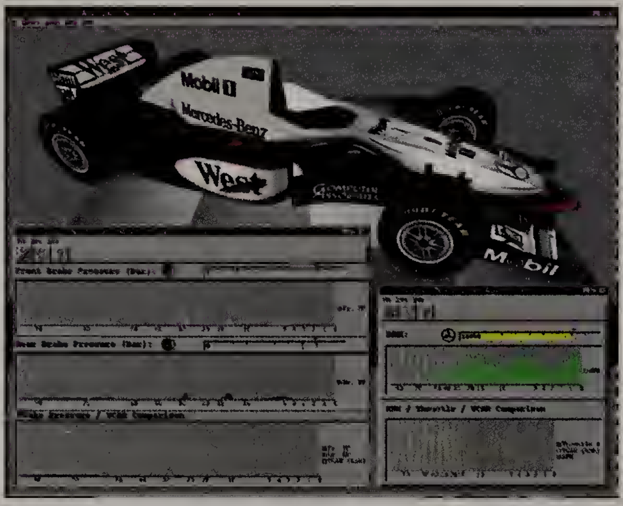

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By looking at this data in a whole new way, the West McLaren Mercedes race team can now make smarter decisions in less time. In a business where hundredths of a second can mean the world, Unicenter TNG is making a difference.

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